Students' perceptions of studying for GCSE and their relationship with attainment

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ABSTRACT

Research into higher education has demonstrated the importance of the backwash effect of assessment on learning. Given these findings, of concern is the neglect of research that explores students' perceptions of studying for GCSE and the impact this has on attainment. Neither has research considered whether pupils' experiences of studying alter as they progress through the two-year course.

As part of a two-year longitudinal project, 1074 GCSE pupils drawn from eight schools responded to a range of statements about their perceptions of studying for GCSE. The schools encompassed pupils who could be regarded as high, middle and low achievers drawn from co-educational and single sex schools. In addition, twenty focus group interviews were carried out during the two-year period to enable greater insight into students' experiences of studying for GCSE.

Evidence of adaptive and maladaptive perceptions of studying was apparent. Pupils reported concerns with time management in relation to balancing the demands of coursework, homework and examination preparation; overload; uncertainty of the requirements of GCSE; knowing what and how to revise; and a lack of support from teachers in scaffolding their learning process.

Where pupils perceived studying for GCSE to be concerned with understanding, there was a significant positive relationship with GCSE attainment. By contrast, where pupils' experiences were of an ambivalent perception of studying, as characterised by a lack of interest, there was a significant negative relationship with GCSE attainment. There was no relationship between perceptions of studying concerned with strategic

self-management, as illustrated by question spotting, with attainment. Students who recognised the effort required in studying and sought to utilise appropriate study strategies did better than those who did not.

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DECLARATION OF WORD COUNT

The exact number of words in this thesis is 78780. The bibliography and appendices are excluded from the word count.

DECLARATION OF OWN WORK

I hereby declare that, except where explicit attribution is made, the work presented in this thesis is entirely my own.

Signed: E L Bgel

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INTRODUCTION

My entire career has been based in education, initially as a music teacher and then working across a number of schools to facilitate the use of information communications technology (ICT) in teaching and learning. I returned to full-time teaching in 1998, this time teaching ICT at a girls' only school. While, for the most part, the girls were enthusiastic about their learning and interested to develop new skills, I soon became concerned about their perception of GCSEs and the anxiety that they generated. Admittedly, I had arrived in the summer term when the pressure of external assessment was more intense.

When I first started teaching, in 1985, the GCSE was about to be implemented and there was some apprehension from teachers and pupils about the new qualifications. I was surprised, then, to discover that even in 1998 some pupils seemed anxious about studying for their GCSEs. Some pupils, not all, had spent endless hours on their coursework, when in reality the quantity of work was unnecessary, and some, again not all, agonised over the volume of material to be revised for the examinations. Yet, from my perspective the ICT coursework was broken down into manageable tasks, and the examinations sought to assess the application of ICT rather than repetition of facts. The pupils' concerns, though, were not simply about ICT, but rather manifested themselves across the entire portfolio of GCSE subjects that they were studying.

This event was the catalyst for the research that is presented here: I wished to gain an understanding of the perceptions of studying for GCSE that pupils held and to explore how this related to attainment at GCSE Level. Given the continued drive by the government to raise standards of attainment, it seemed of critical importance to

understand the perceptions that young people held when studying for what are high stake examinations in their educational career.

Within higher education much research has focused on the ways that students approach their learning, but there are relatively few research efforts within a secondary school context. Admittedly, there are examples of some subject specific work in secondary schools, such as the Cognitive Acceleration through Science Education (CASE) intervention strategy (Adey et al., 1995), but there is little research that looks at perceptions of studying. There are issues, too, with much of the research carried out in higher education on approaches to learning, since much has focused on generalised approaches to studying, with the underlying implication that these are consistent across subjects and different tasks. The aim here was to take the GCSE as the starting point rather than consider generalised approaches to studying, since it is the students' perceptions of the GCSE, and the demands that they perceive it to make, that generate the backwash which influences their learning (Biggs, 1996).

In carrying out this research there were three main aims. The first was to gain an understanding of pupils' perceptions of studying for GCSE, the second to examine the relationship between perceptions of studying and attainment at GCSE and the third to explore whether pupils' perceptions of studying altered throughout the duration of the two-year course in Years 10 and 11.

Relevant literature is reviewed in chapter 1 in which an argument is put forward as to why greater understanding of pupils' perceptions of studying for GCSE is important. This draws upon relevant research findings from higher education and highlights the powerful findings on the backwash effect of assessment on learning. In chapter 2 the

selection of the research design and methodology is discussed and in chapter 3 the development of both research instruments is presented, followed by a description of the actual study. Chapters 4-8 contain the research findings. Initial consideration is given to perceptions of studying for the different elements of the GCSE before exploring how these relate to attainment. In chapter 5 attention is focused on whether perceptions of studying change during the two-year GCSE course. In chapters 6 and 7 complementary statistical techniques are used to consider firstly, whether there are characteristics which underlie perceptions of studying at GCSE, and secondly, to explore different student typologies of studying for GCSE. The findings from student interviews are presented in chapter 8, the emphasis placed on letting the pupils' voices be heard in their own words. In the final chapter the research findings are discussed in relation to the literature reviewed and the limitations of the research are considered.

CHAPTER 1: LITERATURE REVIEW

1.1 Introduction

In the 1970s an important, yet radical, shift occurred in research that sought to investigate students' approaches to learning in higher education. Rather than focus on the prediction of academic achievement within a positivist paradigm, the first phenomenographic research was undertaken to investigate students' understanding of texts (Marton and Saljo, 1976a; 1976b). This seminal work was to prove highly influential on research into student learning in higher education and generated much subsequent work that broadened the initial qualitative approach into quantitative approaches that adopted the use of study inventories. The aim was to understand better how students approached their learning, the conceptions of learning that students held and the relationship between approaches to studying and achievement. In the mid 1980s a few research efforts investigated approaches to studying among secondary school pupils building upon the qualitative and quantitative research begun a decade before in higher education. At the time study skills had a high profile in schools and programmes were devised that arose from the research findings. Initial indications were that secondary pupils might adopt similar approaches to studying to those found among students in higher education. This prospect was exciting. Subsequently study skills receded as an area of interest in schools and further research into the perceptions of studying that secondary pupils held ceased.

This literature review is divided into two main sections. The first focuses on the key findings into research on students' approaches to learning within higher education including the different approaches to studying that are adopted; conceptions of learning that students hold; the influence of assessment, study approaches and motivation on achievement; and the possible benefits of study interventions on learning outcomes.

The intention is to establish the importance of what we know about students' perceptions of learning from research in higher education. The second section focuses on the GCSE and includes the importance of GCSEs in the current educational climate; pupils' perceptions of the GCSE; homework and the current position in schools with regard to study support. Finally, it is argued that there is a need to understand more about secondary students' perceptions of studying.

1.2 Approaches to studying in higher education

1.2.1 Students' approaches to learning within higher education: deep and surface

Prior to the 1970s research into student learning within higher education focused on the prediction of academic performance mainly through the use of school A Level results as predictors of achievement (Entwistle, 1998). These predictors were relatively weak (Entwistle and Wilson, 1977) and subsequently researchers sought to consider other influences on academic achievement, still though operating within a positivist paradigm. Questionnaires and inventories were developed that sought to predict academic achievement. These included a wider range of predictors: previous examination success, personality tests, motivation and study skills (Entwistle, 1998). While these suggested wider influences on academic achievement than had been previously considered, the correlations with degree performance remained low (Entwistle and Wilson, 1977; Entwistle, 1998).

There followed a significant shift in the nature of research. Rather than looking towards predicting student achievement, the focus moved towards a concern for students' perspectives on learning. This change of emphasis, although now accepted, was radical at the time and brought with it a new qualitative approach to research: phenomenography, in which interest was focused on describing how people conceive

and experience reality. Within this field, the work of Marton and Saljo (1976a; 1976b; 1997), in relation to understanding how students learn and study, has been most influential in identifying the distinction between deep and surface approaches to learning. Their initial phenomenographic research sought to examine students' own experiences of learning through the reading and understanding of unknown texts. The results revealed a dichotomy in the ways in which students read an article: what has become known as surface and deep approaches to learning. Further, the process of learning mirrored learning outcomes; thus students who sought understanding (deep approach) gained a deeper understanding of the authors' intention whereas those who aimed towards reproducing fact (surface approach) missed the intention of the author. Subsequent research, using similar qualitative methods, confirmed the distinction between deep and surface approaches to studying (Laurillard, 1979; 1997; Ramsden, 1979; 1997; Watkins, 1983; Hounsell, 1997).

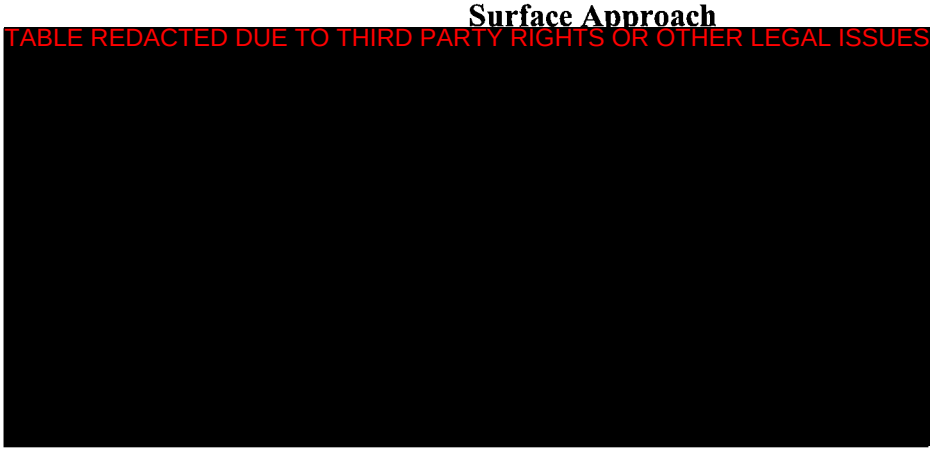
Initial qualitative studies (Entwistle, Hanley and Radcliffe, 1979) led to a combined qualitative and quantitative study in which an attempt was made to measure approaches to studying (Entwistle and Ramsden, 1983). This culminated in the development of the Approaches to Studying Inventory (ASI) (for a review of the development of the ASI see Richardson, 2000) and through this support was found for Marton's classification of deep and surface approaches (Entwistle, 1988a; 1992; Entwistle and Ramsden, 1983). Important is that the ASI drew on the work of Pask (1976) with the inclusion of learning styles: comprehension learning and operation learning, and study pathologies: globetrotting and improvidence. The ASI also included a strategic approach to studying: this will be discussed later. In Australia, Biggs, working within a similar field, developed the Study Process Questionnaire (1987) (for a review of the development of the SPQ see Richardson, 2000). This, too, added support to the notion

of deep and surface approaches to studying through factor analysis of the item responses. This research has been highly influential on teaching and learning within higher education. Relevant is that further quantitative studies have confirmed the presence of deep and surface approaches to studying, such that these findings are considered robust (Richardson, 2000). The defining features of these two approaches to learning are presented in Table 1.

Table 1 *Defining features of approaches to learning*

Deep Approach

Surface Approach



Adapted from Entwistle (1997, p. 19).

One initial difficulty arising from these conceptions of learning concerned the relationship between memorisation and approach to learning. Often rote-learning is

viewed as being indicative of a surface approach; however, there may be occasions, for example when learning vocabulary for a foreign language test, when this is appropriate to the task (Biggs, 1993; Purdie and Hattie, 1999). On these occasions rote-learning is perceived as a mechanical act without any intention to seek meaning (Prosser and Trigwell, 1999). What, though, if the underlying aim is to memorise with the intention of understanding? Tang (1991; 1994) describes a process of deep memorisation that is linked to achieving understanding as distinct from memorising that is indicative of a reproducing surface approach. Marton et al. describe this as 'memorisation with understanding' (1997, p.36) while Entwistle and Entwistle (2003) in exploring students' preparation for final university examinations contrasted 'memorisation' and 'committing to memory' (p. 36). It would appear then that memorisation may occur at a deep or surface level; what remains important is the underlying intention.

1.2.2 The existence of other approaches to learning

The factor analysis techniques utilised in the analysis of questionnaire data by Biggs and Entwistle gave rise, independently, to the suggestion that there were other forms of approaches to studying, in addition to deep and surface: strategic, non-academic and academic self-confidence. Of these, the strategic approach has received the most attention.

The strategic approach, identified by Entwistle and Ramsden (1983), was characterised by a competitive, well-organised approach to study. Biggs (1979), too, identified a third approach to learning: an achieving orientation. The achieving approach was concerned with the need to achieve, and was characterised by organising time, systematic use of study skills, planning ahead and making use of cue seeking (Biggs, 1993). The defining features of the strategic approach to learning appear in Table 2.

Table 2 *Defining features of the strategic approach to learning*

Strategic Approach

TABLE REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES

Adapted from Entwistle (1997, p. 19).

The strategic approach to studying has remained an important aspect of the work of Entwistle, such that the Revised Approaches to Studying Inventory (RASI) continues to assess for a strategic approach (Tait and Entwistle, 1996). However, Biggs et al. (2001) in revising the SPQ argued for the importance of developing an instrument with a two-factor approach that measured surface and deep approaches to studying only. While this was due, in part, to the need to devise a shorter instrument for use by teachers in evaluating the learning approaches adopted by students, further factor analysis of the SPQ had demonstrated that the achieving approach scores could load on either deep or surface factors (Biggs and Kirby, 1984; Wong, Lin and Watkins, 1996; Kember and Leung, 1998).

Entwistle and Ramsden (1983) proposed a fourth approach towards studying: non-academic. This approach brought together negative attitudes and disorganised studying, which were originally from the achieving subscale, and the study pathology globetrotting, previously identified by Pask (1976). In the RASI this non-academic approach was renamed apathetic and assessed lack of direction and lack of interest (Tait

and Entwistle, 1996). The items that measured globetrotting were removed and those measuring disorganised studying reversed and transferred to the strategic orientation. Of interest is that the RASI includes a fifth construct: academic aptitude that concerns academic self-confidence (Tait and Entwistle, 1996). Neither of these dimensions has featured in the work of Biggs.

While research within higher education has continued to emphasise approaches to learning, other researchers sought to identify different styles of learning.

1.2.3 Students' styles of learning within higher education

Pask (1976) put forward a distinction between holists and serialists. Holists set the task in a broad perspective, looking for links with other topics: comprehension learning; whilst serialists concentrated on a more narrow focus and the basic elements of the task presented: operation learning (Pask, 1976). Both of these learning styles were incorporated into the ASI together with their corresponding study pathologies: improvidence and globetrotting. Students classified as versatile learners were seen to adopt both strategies as appropriate to the task and were most effective in their learning (Pask, 1976).

Schmeck (1988) identified what have been termed levels of processing and proposed that the most effective learning strategies were those that had the greatest impact on thought processes. In constructing the Inventory of Learning Processes (ILP) Schmeck et al. (1977) drew on earlier research into human learning and memory, particularly that of Craik and Lockhart (1972), that had sought to explore the relationship between depth of processing and retention. Schmeck (1983) initially identified four learning styles, later developed to focus on deep, elaborative and shallow processing. Again the notion

of versatility in the use of strategies is apparent since although most effective learning was felt to occur with deep and elaborative processing, Schmeck realised that students would utilise components of all three strategies at different times. Evidence suggested that the most successful students were deep, elaborate, fact retainers (Schmeck and Grove, 1979).

1.2.4 Students' approaches to learning within higher education: an integrated perspective

Some researchers have sought to identify common ground that draws together approaches to learning and levels of processing. Entwistle and Waterston (1988), devised a combined inventory, derived from the research of Marton, Pask and Schmeck. Through factor analysis Entwistle and Waterston (1988) suggested four dimensions to describe study processes. A deep approach to learning was seen to link with elaborative processing; surface approaches were linked to a serialist style and the reproducing of information; study methods were linked with organisation; and fact retention brought together achievement motivation and a strategic approach to studying.

1.2.5 Students' conceptions of learning

The research described above provides evidence of different approaches to learning; however, other research sought to consider students' conceptions of learning. Saljo (1979) identified five qualitatively different conceptions of learning held by students: quantitative increase in knowledge; memorising or learning by heart; acquisition of facts and skills which can be retained and used when necessary; abstraction of meaning, and an interpretative process aimed at understanding reality. Later research added a sixth conception that related to personal development and change (Marton et al., 1993).

While the first three categories link with a surface approach to learning, the final categories indicate a deep approach.

1.2.6 Consistency of approaches to learning

One important consideration is whether students are consistent in the approach adopted or whether they adopt different approaches according to the demands of the task or situation. By its very nature the psychometric research implies consistency in approach across tasks and situations, although not necessarily over time. Other research has demonstrated that students were only partly consistent and varied the approach taken according to the task, parts of the task or the demands of the problem (Laurillard, 1979). Of relevance is the 3P model of learning proposed by Biggs (1993; 2003) which indicates that the approach to learning adopted reflects the student's conception of the task, their prior experiences and their perception of the situation. While the characteristics of the student, such as prior knowledge, ability, values and expectations, may be relatively stable, those factors relating to the teaching context, such as course structure, curriculum content and assessment, are not (Biggs, 1993; Biggs et al., 2001). Hence, the actual approach taken when studying is not stable but malleable and may be considered as a reaction to the teaching environment (Biggs et al., 2001; Biggs, 2003). Although the initial phenomenographic research suggested that students were not consistent in the approach taken in relation to different tasks, later research using inventories implied consistency. More recently, greater emphasis has been placed on the choices that an individual makes and how these are influenced by contextual factors. Particularly important is the power of assessment.

1.2.7 The power of assessment in determining how students learn

Research into how students learn within higher education has left no doubt that the nature of assessment impacts on students' approaches to learning and the quality of the learning outcomes. Where changes in assessment methods have been monitored then dramatic effects have been seen on learning (Newble and Jaegar, 1983; Gibbs, 1992; 1999; Entwistle, 1994; Evans and Honour, 1997). Put simply, "The strongest single influence on the quality of learning... seems to be the nature of the assessment procedure" (Entwistle, 1994, p. 12).

Students adjust their study patterns according to the type of assessment. Early research demonstrated that students anticipating factual questions after reading text adopted a surface approach, whereas those who had been asked about the main points of the text adopted a deep approach (Svensson, 1977). Similarly, examinations involving factual recall cause students to shift towards a surface approach while questions that require students to interpret and explain their understanding encourage a deep approach (Watkins and Hattie, 1985). Fransson (1977), in an experimental situation, established that different approaches to learning could be manipulated so that students who found the text interesting tended to adopt a deep approach, while those experiencing anxiety tended to adopt a surface approach.

Conventional assessment methods seem to encourage students to adopt a surface approach (Gibbs, 1992). Where students perceive assessment to be threatening this may induce a surface approach to learning characterised by rote-learning and the reproduction of material (Entwistle, 1988b). Problems with overload also lead students to adopt surface approaches to learning (Entwistle, 1991). Thus students required to learn an overwhelming amount of curriculum material for an examination tend towards

a surface approach to learning and incomplete understanding (Ramsden, 1997; 2003). Furthermore, student expectations about the content of examinations influence the forms of understanding that are sought during revision and the processes of learning and memorising that are adopted by students (Entwistle and Entwistle, 1991; 1997; Entwistle and Entwistle, 2003).

The research referred to above lends weight to the notion of the backwash effect of assessment on learning in relation to students' perceptions of the demands of the assessment (Biggs, 1996; 2003; Ramsden, 2003). Students learn what they think they will be tested on (Biggs, 2003). As Boud writes, "Learning is so driven by assessment that the form and nature of assessment often swamps the effect of any other aspect of the curriculum" (1990, p. 103). If the assessment is perceived to require higher levels of cognitive processing necessary for the integration and application of ideas then students are more likely to engage in a deep approach. But if the assessment system is poorly aligned with curriculum objectives, and is perceived to demand reproduction of factual details, then students will tend towards a surface approach. 'Cue-seeking' students are particularly affected by the backwash of assessment in their constant search for cues that will help them to prepare for the assessment (Miller and Parlett, 1974). The backwash effects of assessment may determine not only what is learned, but also how it is learned in a more powerful manner than the formal curricula or teaching methods (Biggs, 1996).

Within higher education alternative approaches to examinations have been developed in an attempt to encourage students to adopt a deep approach to learning. Relevant to this study is the introduction of coursework and problem-based curricula that can be seen as encouraging self-regulated learning and eliciting a deep approach (Watkins and Hattie,

1985; Newble and Clark, 1987; Gibbs, 1992; Vernon and Blake, 1993). Research indicates that these methods do encourage a deep approach; however, not all students have enough prior knowledge to understand how to undertake this type of work (Meyer, 1991; Tang, 1991; 1994).

1.2.8 The interplay between approaches to studying and motivation

Implicit in the defining features of approaches to learning (see Tables 1 and 2 above) are underlying differences in motivation. Indeed, both Biggs and Entwistle sought to integrate approaches to studying and motivation since it appeared that differing forms of motivation were associated with different approaches to learning and that these in turn affected the learning outcome (Entwistle, 1988a). Biggs (1979) described each approach to studying in relation to an affective (motivational) and a cognitive (strategy) component. Thus, for instance, his description of the internalising approach, later termed deep (Biggs, 1985), was characterised by intrinsic motivation and a desire on the part of the student to be interested in the subject for its own sake. The accompanying cognitive component was that of looking for overall conceptual frameworks by reading widely beyond set texts. The surface approach was deemed illustrative of extrinsic motivation and the strategic approach illustrative of achievement motivation.

While the association between motivational style and approach to learning has continued to be prevalent in research into approaches to learning (e.g. Entwistle and Smith, 2002), there is a concern that this neglects the consideration of a more dynamic interaction that might occur between motivation and students' use of cognitive learning strategies, metacognitive strategies and effort management strategies. A student with an intrinsic interest in a subject, indicative of a deep approach to learning, but who adopts

ineffective or inefficient strategies, will not do as well as a student who utilises effective strategies (Pintrich, 1989).

Pintrich and Garcia (1991) proposed a social cognitive model of pupil goals and self-regulation that suggested, as in the research reviewed, that both motivational and cognitive components play an important part in pupil learning. In the model motivation comprises three general components: value, expectancy and affect, with all three playing an important role in students' motivation. The value component is concerned with the student's goal orientation as well as the value placed on the task in terms of its level of interest and importance. The expectancy component concerns the beliefs that students hold about the degree of control they have over their learning and their level of self-efficacy. The affect component concerns the emotional reactions students may have to a task, including self-worth and guilt.

Learning and self-regulatory strategies might also be perceived in terms of three general categories: cognitive, metacognitive and resource management (Pintrich, 1989; Pintrich and Garcia, 1991). Cognitive strategies are general methods that students employ in the comprehension of text and draw on the work previously reviewed that identified surface and deep approaches to learning (Pask, 1976; Schmeck, 1988; Entwistle, 1992; Marton and Saljo, 1997). Students adopting a surface approach are drawn towards rote-learning rehearsal strategies, focus on learning the individual facts required for an assessment and appear more extrinsically oriented. The deep approach is illustrative of a more intrinsic orientation whereby students adopt more elaborative and metacognitive learning strategies so that they may gain a deeper understanding of the material (Pintrich and Garcia, 1991). Students who engage in specific cognitive strategies, for instance elaboration and organisation, in trying to learn tend to perform better than

those who do not use these strategies (Pintrich and De Groot, 1990). Among school pupils there is evidence to suggest that gifted pupils make greater use of organising and transforming, reviewing notes, self-consequating and seeking peer assistance (Zimmerman and Martinez-Pons, 1990).

Metacognitive strategies in terms of self-regulatory functions encompass planning, monitoring and regulating behaviours (Pintrich, 1989; Pintrich and Garcia, 1991). Students who plan their use of cognitive strategies, whether it be setting goals or skimming a text before reading, perform better than students who do not (Pressley, 1986). Self-monitoring and regulating strategies are closely linked since if students monitor their comprehension of a passage by asking themselves questions it is apparent when something is not understood. The process of rereading a passage in order to enhance understanding is a regulatory strategy. Students who approach their studies with an intrinsic or understanding orientation are more likely to use these metacognitive strategies.

Resource management strategies involve students in the management of their time and their environment, their management of themselves in terms of effort and persistence, and their management of seeking help (Pintrich, 1989; Pintrich and Garcia, 1991). Thus, for instance, students who are aware of needing some assistance and know how to seek help and from whom are more likely to succeed than those who do not. Students with an intrinsic orientation are more likely to seek help from their peers or teachers (Pintrich and Garcia, 1991).

Relevant to the research reported in this thesis is a study by Pintrich (1989) in which 224 college students completed the Motivated Strategies for Learning Questionnaire

that requires individuals to rate themselves on motivational and cognitive items. In addition a range of performance measures was gathered that encompassed achievement in examinations, essays and laboratory work. Of particular interest is the analytical approach taken to consider how motivational and cognitive components work together to contribute to academic performance. Rather than consider regression analysis, which would suggest that the different components work independently, the technique of cluster analysis was adopted in order to create a typology of students that revealed different patterns of relationships between motivation, cognition, metacognition, academic performance and effort management. Five distinct groups of students were identified, including traditionally good students, traditionally poor students and average students. The main characteristics of the different groups are presented in Table 3.

These results highlight the importance of looking for patterns of relationships among metacognitive, cognitive and motivational components. Cluster 5 students, for instance, although displaying some characteristics of a deep approach in that they were motivated towards the course, worked hard and were self-regulating, lacked confidence in their ability and subsequently did poorly in examinations.

Table 3 *Characteristics of the cluster groups*

Cluster 1: Traditionally good students

Cluster 2: Traditionally poor students

Cluster 3: Average students

Cluster 4: Average students

Cluster 5: Average students

Adapted from Pintrich (1989)

1.2.9 Study strategies and achievement

What is apparent from the literature reviewed is that, given appropriate assessment procedures, higher academic performance is associated with the adoption of a deep approach and lower academic performance with a surface approach (Svensson, 1977; Biggs, 1979; 1987; Trigwell and Prosser, 1991; Prosser and Trigwell, 1999; Ramsden, 2003). Evidence suggests that, among first year university students, a contributory factor to poor progress relates to the failure of students to adopt appropriate study skills (Biggs, 1987; Raaheim, Wankowski and Radford, 1991). Many students embarking on study at university do not have the necessary study skills to work independently. Students may be unsure of how to make notes, may experience difficulties in managing their time and workload, may be unsure of the available support and may find difficulties in motivating themselves (Wall et al., 1991). In support of this, interactive computer programmes, such as *StudyAdvisor,* have been devised to enable weaker students to reflect on their learning and to improve their study skills (Tait and Entwistle, 1996).

Also important is the finding that many students in higher education do not have the necessary metacognitive skills required for effective study (Tait and Entwistle, 1996; Minnaert and Janssen, 1999). Furthermore, the lack of effective application of metacognitive skills has a negative impact on academic performance. Even among high ability undergraduate students from a range of subject disciplines, Minnaert and Janssen (1999) found that cognitive regulatory activities had a substantial additive value on top of verbal, numerical and diagrammatic intelligence in explaining academic performance. For instance, with regard to verbal intelligence, students in the higher cognitive regulatory group outperformed those in the lower one in terms of academic performance regardless of verbal intelligence. The lower intelligence group with high

regulatory activity achieved similar mean examination results to those of medium intelligence but with low regulatory activity.

Successful learners have better access to their prior knowledge and utilise a variety of metacognitive skills more effectively (Tait and Entwistle, 1996; Minnaert and Janssen, 1999; Purdie and Hattie, 1999). Hence, "Developing an awareness not only of the nature of learning in which one is engaged, but also of one's own learning processes, may be a prerequisite for learning how to learn effectively" (Ford, 1981, p. 360). Emphasis is placed on having sufficient metacognitive awareness to enable a flexible approach whereby students can assess the demands of the task and the environment, together with their own prior knowledge and current level of expertise, and choose the most effective strategy that meets these conditions.

1.2.10 Study interventions and learning outcomes

Historically, much research into study skills has taken the form of interventions that encompass some form of 'study skills' or strategy training. Hattie et al. (1996) in their meta-analysis of fifty-one studies classified study interventions into three groups: cognitive, affective and metacognitive. Cognitive interventions were those aimed at teaching students a particular task-related skill such as underlining or summarising. These specific skills were viewed as tactics which could then be grouped and used intentionally as a strategy. This highlights the distinction between what is understood by study skills as opposed to study strategies. Study skills are the individual tactics that an individual may be taught, whereas strategies are a collection of mental tactics that a student employs in a particular learning situation in order to facilitate the acquisition of skill or knowledge (Derry and Murphy, 1986). Metacognitive interventions focus on the self-management of learning and also on the conditional knowledge of when, where,

how and why to use particular tactics and strategies in the relevant contexts. Affective interventions focus on non-cognitive aspects of learning such as self-concept and motivation (Hattie et al., 1996).

Hattie et al. (1996), while demonstrating that study skill interventions do have a positive effect on learning outcomes, sought to identify those features of study skills intervention programs that were most likely to lead to success. Their results supported the notion of situated cognition, the importance of self-regulated learning and metacognitive awareness. The direct teaching of general all-purpose skills is not particularly effective (Garner, 1990; Pintrich and De Groot, 1990). More positive outcomes are seen when strategy training is carried out within a cognitive, metacognitive and self-regulatory context where the focus is on specific content (Brown et al., 1983; Derry and Murphy, 1986). Affective components, including motivation and self-efficacy, are also involved (Biggs, 1987; Pintrich and De Groot, 1990; Pintrich and Garcia, 1991) and the teaching context needs to be supportive of any interventions (Brown et al., 1983; Derry and Murphy, 1986; Garner, 1990; Biggs, 1993).

There would appear to be no such thing as a 'best' set of study skills (Purdie and Hattie, 1999) since the usefulness of different strategies depends upon the specific tasks and contexts, as well as individual levels of understanding and prior knowledge. Subject differences may also be contributory since within higher education differences in approach and the choice of strategies appear when contrasting the arts and sciences (Ramsden, 1997). What is important is the versatility with which study skills are employed. Higher levels of success are achieved among students who are more versatile in the use of a range of study skills (Purdie and Hattie, 1999). Noteworthy, in Purdie and Hattie's research (1999) was the finding that the strategies associated with

deep, surface and strategic approaches, were more strongly related to assessment than motives. Within a deep approach successful strategies encompassed reorganising material so that it was personally relevant, critical evaluation and using mental imagery. With regard to achievement strategies the highest positive correlation with learning outcomes was for note taking (Purdie and Hattie, 1999).

Some research has focused on the relationship between study time and academic achievement. Carroll (1963) proposed a model in which the degree of learning was seen to be a function of the ratio of the actual amount of time spent learning the task to the amount of time needed for learning. This model highlighted the importance of time, effort and motivation in determining achievement and has been influential on much research in education, although there appears little agreement about the relationship between time spent and learning outcomes. It may be that it is the quality, as opposed to the quantity, of study time that relates to learning outcomes (Wilhite, 1990). Nixon and Frost (1990) found support for a curvilinear relationship between study time and academic attainment. Able students might work more quickly and not need to spend long hours studying. Where students do not spend time studying they gain low grades and increased time spent studying might lead to improved grades. After a certain point additional study time ceased to be productive and might be indicative of poor study habits or lack of ability (Nixon and Frost, 1990).

1.3 Studying for GCSE

1.3.1 The importance of GCSEs

Within the current educational system, success in GCSE examinations at the end of Year 11 provides a measure of attainment that impacts on entry to further education and possible courses of study, employment opportunities and career prospects. This

summative assessment is crucial to all young students (Sammons, 1995; Gillborn and Gipps, 1996; Demack et al., 2000). In addition, the drive to raise standards of achievement, as measured through league tables and national assessments throughout the 14-16 year-old curriculum, has led to a focus on attainment in a way that creates great pressure on students and teachers alike.

In the context of the research reported in this thesis, it is important to establish that the curriculum content of the GCSE itself is not the focus of this investigation. Rather, the GCSE is viewed as an important set of high stake examinations, across a broad range of subjects, taken by most young people in England. Given the powerful findings from higher education on the backwash effect of assessment on how students learn (Boud, 1990; Biggs, 1996; 2003; Ramsden, 2003) this research focuses on pupils' perceptions of the GCSE rather than considering generalised issues that relate to studying. It is the students' perceptions of the GCSE and the demands that they perceive it to make that generate the effect of backwash (Biggs, 1996). Within this context, it is pertinent to understand what the GCSE entails.

1.3.2 GCSE: an overview

The move from O Level to GCSE in 1988 marked a sea change in the nature of assessment at age sixteen. At the time of implementation much emphasis was placed on assessment, given the introduction of substantial amounts of teacher-moderated coursework. Less emphasis was placed on the necessity to learn facts for recall in terminal examinations, and coursework was introduced in the belief that it would enable students to demonstrate their skills and knowledge in an applied context. It was hoped that the inclusion of coursework would provide a more equitable means of assessment whereby students would be given the opportunity to explore areas of personal interest.

Within higher education, coursework had been included for years prior to this, and research into student learning left little doubt that the nature of assessment impacted on students' approaches to learning and the quality of the learning outcomes. There seemed no reason why the statement "the quickest way to change student learning is to change the assessment system" (Elton and Laurillard, 1979, p. 100) should not have been as applicable to schools as to higher education.

While the examinations ensured that a synoptic element was present, the nature of examination questions changed, such that syllabuses were restructured to explore students' understanding and application of concepts, rather than testing what they could remember. Multiple-choice papers, that may have encouraged a surface approach to studying, were, for the most part, dropped in favour of non-traditional school examination techniques such as coursework, investigations and orals (Elwood and Comber, 1996).

In broad terms, the GCSE looked towards an effective way of assessing the capability of students in situations where they could carry out more individualised work, work at their own pace, engage in coursework that was stimulating, and feel less pressured by the 'revision' factor of examinations. All pupils should have felt this was an accessible qualification that rewarded effort through sustained coursework and questioned their understanding of concepts in examinations rather than their ability to memorise. This change in structure could be said to have provided scope for a deep approach to learning (Marton and Saljo, 1997) whereby emphasis was placed on interpretation of knowledge.

However, there were problems when the GCSE was first introduced. Pupils found it difficult to cope with the volume of work and to balance their time between work

focusing on examination preparation and coursework. Specific examples included conscientious pupils who spent excessive hours on homework and pupils who had difficulties in planning their work. Homework suffered if it was not linked directly to coursework (DES report, 1988).

Today teachers are more familiar with the assessment criteria for the GCSE and have adapted their teaching methods to the GCSE, and the National Curriculum and subsequent Curriculum 2000 underpin GCSE requirements in a way that was not possible before. Since 1988 two major revisions of the GCSE have occurred. In 1994 coursework components were reduced significantly for all but the practically orientated subjects such as Art, Design Technology, Music and Information Communications Technology. Prior to this the weighting of coursework varied considerably, such that it was possible to complete GCSE English Language based entirely on coursework or with an equal weighting of coursework and examination or with coursework accounting for 20% and the examination accounting for 80% (Kingdon and Stobart, 1988). The changes made to the coursework weighting were important and meant that from 1994 most subjects operated with a coursework component of 20%. Tiered entry was also introduced in 1994 for core subjects. The second revision occurred in 2001 (first examined in 2003) for all subjects except English (revised in 2002). The new specifications identified the three Key Skills of literacy, numeracy and information technology in all subject areas and sought to rationalise subject content.

One of the laudable aims of the GCSE was to provide a more inclusive examination, replacing the previous two-tier system of O Levels and CSE. This previous system had aimed to meet the needs of the top 60% of students (20% O Level plus 40% CSE); however, the GCSE as a single examination aimed to encompass a broader spectrum of

students: 80%. Thus the GCSE aimed to include a substantial proportion of students for whom the previous examinations had proved inaccessible. In practice this admirable aim has not been achieved since many individuals still regard anything below grade C as failure (Bishop et al., 1999).

Employers, pupils and universities adopt an O Level style benchmark for success: five GCSEs at grades A*-C (A-C until 1994); thus all pupils are aware of their "standing". Such also was the initial criteria for government league tables. More recently, league tables have included a wider range of attainment measures and in 2004 point scores were calculated for pupils that included vocational qualifications. While this could be seen as an attempt to broaden perceptions of success at GCSE, the proportion of pupils gaining five or more higher grade GCSEs has remained the dominant performance indicator. Furthermore, the introduction of a general GSCE diploma (DfES, 2005), awarded to pupils gaining five or more A*-C grades at GCSE including English and mathematics, will reinforce the importance of this benchmark. In addition, the introduction of tiered entry to courses (1994 in core subjects) could be seen to induce a similar division to that felt between O Level and CSE in the minds of pupils before they are even entered for an examination.

Taking a positive view, the GCSE is perceived as a credible examination, making use of teacher assessment of coursework, a range of external moderators to validate the standards, summative written papers and a range of practical tests and orals (Gipps, 1994). Since implementation standards nationally have been rising, with the number of pupils gaining the key benchmark of five or more GCSEs at Grades A*-C increasing by over 50%. In 1989 32.8% of pupils gained five of more GCSEs at grades A-C, by 2004 this figure had risen to 53.7%.

1.3.3 GCSE: the pupil perspective

Pupils within mainstream education are subject to more forms of national assessment than ever before. GCSE examinations are taken at the end of the two-year course during May and June. Coursework is completed by the end of April in Year 11 and thus during the summer term the entire focus lies on examinations: the pressure felt is understandable.

Bishop et al. (1997) reported that students felt coursework to be the fairest method of assessing performance and in this respect GCSEs are in accord with the government's aims. Coursework was found by the majority to be motivating, more true to life than being assessed by examinations and was valued since it kept students on target. Although these findings appear positive and confirm any required justification for the inclusion of coursework as a substantive element of the GCSE, there were indications of concern that link back to some initial problems already identified with the introduction of the GCSE.

The majority of pupils felt that they were overloaded with coursework and felt under similar pressure with regard to the volume of coursework required (Bishop et al., 1997). Differences were seen, however, according to ability, with middle and lower attainers perceiving themselves more overloaded with coursework than high attainers. Most students felt that there was no difference between boys' and girls' ability to do GCSE coursework.

Traditionally, examinations have been perceived as adding credibility to a course and test the ability of students to answer questions without recourse to prompts. Indeed, while there is some evidence to suggest that pupils have a preference for the coursework

element of the GCSE, Bishop et al. (1997) found that pupils regarded it as necessary to sit end of course examinations for GCSE primarily as a means to add credibility. Approximately two-thirds of the pupils in the survey agreed with the statement, "An end of course examination is essential for the credibility of the GCSE" (p. 307).

High stakes examinations are threat-provoking especially given the formality of the environment and the time-pressures. The importance of getting good results shifts the balance from hope for success towards fear of failure to such an extent that only highly confident pupils may be able to utilise the tension felt to enhance performance (Entwistle, 1988b). Research from higher education indicates that overload, anxiety and fear of failure can lead students to adopt a surface approach to revising that draws heavily on the remembering of facts. This in turn creates added pressure since from the student's perspective memorisation becomes key to success rather than the ability to answer questions independently. Many students, once having taken the examination, feel that they remember very little about the subject matter (Entwistle, 1988b).

The GCSE is a source of stress for pupils and, while coursework might alleviate some of the pressure, pupils perceive the examinations to be pivotal to their success (Denscombe, 2000). In particular, the perceived unpredictable content of examinations generated anxiety and pupils felt that they might revise for a topic to find that it was not covered in the examination. Some pupils were more able to cope with the demands of the GCSE than others and it may be that cultural pressures, ability and differing personalities have a bearing on this (Denscombe, 2000).

1.3.4 Research into perceptions of studying among secondary school pupils

While there is little research with regard to perceptions of studying among secondary school pupils, of interest is the study by Entwistle and Kozeki (1985) that investigated approaches to studying among British and Hungarian adolescents. The findings lend weight to the proposition that school aged pupils adopt different approaches to learning similar to those found in higher education. Hungarian students appeared to place emphasis on meaning orientation, a fact that was interpreted to reflect the greater emphasis on recall of facts in examinations in the UK at that time. UK students, in comparison, achieved a higher mean on the reproducing orientation, indicating a surface approach, serialist style, fear of failure and instrumental motivation. Among all pupils attainment was found to correlate positively with a deep approach and intrinsic motivation. Negative correlations with attainment were found with a reproducing orientation.

Among Australian school aged students Biggs (1987) identified deep, surface and achieving approaches to studying, although in the revised version of the Learning Process Questionnaire (Kember et al., 2004), as with the revised version of the Study Process Questionnaire (Biggs et al., 2001), only deep and surface approaches were included. Although limited performance data were available, surface approaches were consistently associated with poor performance (Biggs, 1987).

Research by Selmes (1987) and Entwistle and Kozeki (1985) confirmed the adoption of deep and surface approaches to learning amongst school pupils and suggested parallels with higher education and the impact of assessment and anxiety on approaches. As with students in higher education, it seems plausible that it is the different intentions that pupils adopt at GCSE that provide the key to effective learning. In addition, given the

identifiable difficulties that some higher education students have in the utilisation of effective metacognitive strategies, it seems reasonable to suggest that problems also exist amongst GCSE pupils. Biggs (1987) proposed a range of possible interventions for pupils with different study profiles, particularly with reference to training in study techniques, and Selmes (1987) developed the 'learning to learn' program for sixth formers, based on research findings from higher education, which sought to consider learning from the student's perspective. The possible benefits of study skill interventions have been established in relation to higher education, but what remains unclear is how helpful such interventions might be for school pupils.

1.3.5 The position in schools: study skills

Within secondary education, study skills received a relatively high profile during the 1980s and projects were funded to investigate how teachers could teach children to study effectively. Most research focused on post-sixteen pupils, probably because there was greater evidence of study skills being taught at sixth form level; pertinent to the aims of this research, was the sentiment that pupils did not need to be able to think and work more independently until the sixth form. Prior to this, O Levels had emphasised didactic instruction and examinations. These constraints render much of the research out of date, especially since the coursework demands of the GCSE were such that independent work was a necessity.

The GCSE demands a range of study skills from students in part because of the dual nature of assessment that comprises coursework and examinations. Time management, self-discipline and motivation appear important particularly in enabling students to balance the requirements of coursework with the necessity to practice and revise for examinations. Selmes (1987) provides a list of other concerns, including making

independent notes, finding relevant information in books, remembering information, assessing arguments, planning written work, organising revision and adjusting to greater independence. The list is comprehensive, although it omits the role of computers, not then widely available. New areas of difficulty may include the use of CD-ROMs and the Internet in searching for information, the ability to skim vast quantities of information, the need to discriminate about what is useful and the ability to synthesise information from a range of sources. It seems plausible that the rapid expansion of computer technology with the accompanying easy access to knowledge has generated a new group of skills that need to be acquired in order to study effectively.

Given these identifiable problems, it is appropriate to consider what schools have offered in the way of help. Often study skills are timetabled as a discrete subject and in the early 1980s many programmes were preoccupied with component skills such as note taking and speed-reading. Later a much-needed change of perspective occurred, and there was a focus on developing the student's awareness of his/her approach to learning. One such approach, 'learning to learn' (Selmes, 1987), sought to help pupils develop effective strategies for learning and involved a reflective element since students were assisted in reviewing the relative success of their study approaches. Important is that this approach drew upon research findings within higher education (Selmes, 1986), given the indications that secondary pupils adopted similar approaches to studying to those found in higher education. Selmes' work, however, although applauded for its emphasis on reflection and metacognition, was restricted to a small group of male sixth-formers. Furthermore, these 'learning to learn' workshops occurred outside the curriculum. Entwistle (1987) argued that unless teachers systematically related the workshops to their subject areas the effect of the workshops would be slight.

Retrospectively, it appears that the changes within the structure of education since 1986, the introduction of the National Curriculum and the advent of the GCSE, have resulted in study skills receding as an area of concern. It may be that with the recent focus on thinking skills (DfEE, 1999) there is a return to the earlier view that education is about more than subject-bound facts and should seek to address how pupils develop their ability to learn. The White Paper *Schools Achieving Success* (DfES, 2001), while reiterating the need for pupils to be able to reason and to think logically and creatively, sets as one of the government's goals for education that pupils, by the age of fourteen, should have learned how to take increasing responsibility for their own learning.

The shift of emphasis seen in the 'learning to learn' programme (Selmes, 1987) was fundamental in that it looked towards the need to understand learning from the learners' perspective and as such mirrored the radical change in research that had occurred within higher education (Selmes, 1986). At the time there were suggestions that much might be learned about students' perceptions of studying in school that built upon the work carried out in higher education (Entwistle, 1987). This has not happened. Little research since the late 1980s has focused on the investigation of perceptions of studying among school pupils that encompass cognitive, metacognitive and motivational factors.

Study strategies operate at a sophisticated level. The ability of GCSE pupils to take effective notes, for example, concerns much more than whether pupils can write quickly. It is important, therefore, that attention is given to helping pupils appreciate that there are a range of skills that can be employed rather than teaching them a specific study skill (McKeachie, 1988). Central to this is the distinction made earlier between study skills and study strategies. Indeed, Purdie and Hattie (1999) propose that

"students are better advised to put more effort into becoming competent users of a range of study skills" (p. 84) rather than increase the time spent on study.

As yet research has given little indication of strategy use among school pupils. Seeking help to clarify understanding is an important strategy, and indeed Weeden et al. (1999) confirm that pupils are very dependent on their teachers. Chaplain (2000), however, reports that a third of the pupils in his survey found it difficult to ask their teachers for help or advice. Often students most in need of support are the least likely to ask for help (Sharp et al., 2002) whereas students who are self-regulated learners are more likely to seek help (Wigfield et al., 1998). Regarding pupil independence, Weeden et al. (1999) found differences according to ability, with the more able students enabled to be more autonomous and those less able often unsure of what to do.

Also important for learning is the ability to assess whether the work completed is adequate or not. Teachers perceive students to have difficulty in being self-critical (Selmes, 1987; Weeden et al., 1999); however, some pupils lack confidence in their ability to judge their performance and some use less than satisfactory criteria on which to base their evaluation, such as time spent (Weeden et al., 1999). That some pupils are uncertain about what is required presents difficulties when attempting to evaluate work; indeed, it is suggested that teachers make inadequate use of self-assessment as a strategy to support the learning process (Weeden et al., 1999; 2000). The ability to self-assess, to ask for help, to self-regulate and to work independently are important strategies that research indicates are lacking among many pupils: what then happens when pupils work at home?

1.3.6 Homework

Homework has been set by teachers in secondary schools since the mid-nineteenth century and has had a varied role that has placed it in or out of fashion (Hallam and Cowan, 1998). The homework debate continues to be in the public eye and is much driven by assessment issues (Hallam, 2004; Lee, 2005). This is especially the case at GCSE where the requirements for examinations and coursework mean that it is impossible for students to complete all tasks within lesson time. Year 10 and 11 pupils tend to have a lot of homework related to the GCSE (Ofsted, 1995). Schools then do not bear all the responsibility for pupil achievement at GCSE since a major amount of preparation happens at home (Cowan and Hallam, 1999).

Homework forms an integral part of learning for GCSE and can provide a means for pupils to reach higher standards and improve pupils' study skills and attitudes to learning (White Paper *Excellence in Schools*, 1997). Homework offers a range of possible benefits in assisting the development of generic skills which appear at the core of an effective learning strategy for GCSE. These include opportunities for individualised work; fostering initiative and independence; developing skills in using resources; training in the planning and organisation of time; developing self discipline, and encouraging responsibility for learning (Cowan and Hallam, 1999).

In secondary schools there is much variation in the type of homework set, the frequency with which it is set and the level of contribution made to student learning (Ofsted, 1994; Weston, 1999). The four most common types of homework are finishing off work begun in class; self-contained homework; work arising from a project or activity, and preparatory reading before a lesson (MacBeath and Turner, 1990). The DfEE (1998) advised secondary schools against excessive use of homework for finishing off work

carried out in class; indeed research evidence suggests that pupils dislike homework of this type perceiving it to contribute little to their learning (Sharp et al., 2001). Different subjects have different amounts of homework time allocated dependent on their perceived importance; there are also suggestions that pupils recognise these subject hierarchies and in turn prioritise the completion of homework (MacBeath and Turner, 1990).

Pupils may view homework positively in the belief that it can help them do well at school, if it is seen as an integral part of schoolwork, is well explained and targeted at their level (MacBeath and Turner, 1990). Problems occur where homework is poorly explained; perceived to be too easy or too difficult; and when timetabling problems lead to 'light' and 'heavy' homework days (MacBeath and Turner, 1990). This last point is particularly relevant to GCSE students given the increased homework load for Years 10 and 11 and their need to manage homework time effectively. Teachers do not always assist pupils in this process: some ignore school homework timetables both in giving the work and setting deadlines (DfEE, 1998).

The feedback provided to pupils is important since this may affect the effectiveness of the homework (Cooper, 1989b). Evidence from higher education suggests that the lack of feedback about performance makes further learning difficult (Ramsden, 1997), yet school pupils do not always understand or appreciate the feedback provided by teachers (MacBeath and Turner, 1990; Weeden et al., 1999; 2000). Pupils report being confused by effort and attainment grades and indicate that at GCSE teachers did not give enough attention to their work (Weeden et al., 2000). Poor quality feedback was felt to be de-motivating and, in some cases, particularly critical feedback damaged self-esteem and self-concept.

The DfEE (1998) guidelines for the amount of homework set in secondary schools propose a gradual increase in time allocation ranging between 45-90 minutes per day in Years 7 and 8 to between 1½ - 2½ hours per day in Years 10 and 11. There is, though, considerable variation between schools, although Weston's (1999) reported median of 10 hours homework per week set for Year 10 pupils is in line with the DfEE recommendations. Relevant is the discrepancy between the volume of homework that schools say they set and the amount of homework that pupils report doing. At Key Stages 2 and 3 pupils perceived themselves completing less homework than their teachers set (Weston, 1999). Notably, Cooper et al. (1998) found that the amount of homework completed by students, rather than the amount set, correlated more strongly with achievement. There was no correlation with the amount of homework set by the teacher.

Research carried out in the US (Cooper, 1989a; 1989b) indicates a positive relationship between time spent on homework and achievement, with the greatest benefits being seen amongst the oldest pupils. By contrast, Chen and Stevenson (1989) in a cross-cultural study found no consistent linear or curvilinear relation between the amount of time spent on homework and academic attainment. Within the UK, Weston (1999) similarly found no clear trend linking time allocated to homework in performance levels in national tests or GCSE; however, research on A Level students indicated a positive relationship, though the payoff was slight (Tymms and Fitz-Gibbon, 1992). It would appear that although homework can contribute to an increase in academic attainment, most of the variance is accounted for by pupils' prior knowledge (Keith and Cool, 1992; Hallam, 2004).

In an attempt to provide effective study environments, some schools have introduced homework clubs. These can mediate the differences that homework accentuates in terms of socio-economic status and access to resources, in addition to differences between high and low achievers (Cooper 1989a; 1989b; Cowan and Hallam, 1999; Hallam, 2004). Research on the effectiveness of homework clubs based on pupils from relatively deprived backgrounds is positive: pupils attending homework clubs perceived homework as more enjoyable; felt their chances of doing well in examinations had improved, and valued the quiet place in which to work (MacBeath, 1993; MacBeath et al., 2001). Year 11 pupils valued the individualised help, the absence of disruptive students, and revision sessions (Sharp et al., 2002). For others, emphasis was placed on the resources available with regard to books and computer access. Pupils expect to draw on home-based resources for schoolwork (Weston, 1999), yet Johnson (1999) reported that 18% of pupils felt that they had inadequate books at home to support their study. Heppell (1994) highlighted pupils' preference for producing homework on computers, since, of those with home access, almost all wanted to do their homework on computer, yet at Key Stage 3 only 57% of pupils had access to a home computer (Weston, 1999).

Television has been regarded as a distraction to homework, yet many pupils report working with background music or television (Hallam and Cowan, 1998). Older pupils, in comparison with younger pupils, are more likely to regard the accompaniment offered by television passively or indeed positively (Wober, 1992). For some pupils it removes the sense of loneliness associated with doing homework and enables them to focus (MacBeath and Turner, 1990). It may also help to improve concentration if homework is felt to be boring. By listening to music arousal levels can be maintained at an optimal level so that the task can be completed with an effective level of

concentration (Hallam et al., 2002). Research findings into the relationship between the amount of time spent watching television, time spent on homework and attainment at school are inconclusive.

1.4 Aims of the research

Education in schools is high on the political agenda. The fourteen to nineteen year old curriculum is under review; a number of interventions at school and LEA level are in place, including new forms of classroom organisation, single-sex classes and the provision of study support and homework clubs; and there is active research exploring the outcomes of some interventions (Sukhnandan et al., 2000; Jackson, 2002). The emphasis on attainment has led to a neglect of research that considers the backwash effect of the GCSE in relation to pupils' perceptions of the GCSE and the impact this may have on their approaches to studying. What is lacking is research providing a more integrated, in-depth understanding of the role played by perceptions of studying that takes account of ability and achievement in a systematic and rigorous manner.

Evidence drawn from research into higher education suggests that the ability of students to adopt effective approaches to studying that encompass motivational, cognitive and metacognitive components impacts on their level of academic success. Students employing a range of strategies appropriate to different task requirements and their individual preferred learning styles achieve more highly. There appear few reasons why approaches to studying found among students in higher education should not be similar to those adopted by school pupils. This seems particularly so given the changes in education encompassed by the introduction of GCSE and the modifications to AS and A Level specifications. These qualifications, with their emphasis on coursework and interpretation of knowledge, place quite different demands on pupils than those seen in

the more didactically oriented O Levels, CSEs or former A Levels. GCSEs are high stake examinations for secondary pupils that impact on their future education and career paths. That relatively little research has sought to explore perceptions of studying among GCSE pupils is disappointing.

The GCSE demands a variety of study strategies for the different assessment modes and yet there is little evidence as to whether pupils hold different perceptions of studying for coursework and examinations. To gain success at GCSE requires pupils to be able to approach both coursework and examinations in an effective manner. Yet research gives no indication as to whether pupils employ different strategies for these elements. Neither does research give clear indications as to whether pupils' perceptions of studying change throughout the two-year course.

If, as suggested by Purdie and Hattie (1999), students would be better employed in increasing the range and flexibility with which they employ different study strategies, it appears crucial to gain a better understanding of the strategies utilised by pupils. Currently, there appears no effective way of characterising the study strategies that pupils adopt, there is little understanding of whether these are linked with prior knowledge and ability, whether improved study strategies may facilitate greater academic success and whether perceptions of studying change over the duration of the GCSE course.

These concerns form the focus of this research and provide the platform for three aims:

- To explore how perceptions of studying at GCSE Level can be conceptualised;

- To explore whether there is a relationship between perceptions of studying and performance at GCSE Level;
- To explore whether perceptions of studying change over time as pupils progress through their GCSE course.

CHAPTER 2:

SELECTION OF METHODOLOGY AND RESEARCH DESIGN

2.1 Formulating the research design

Scott and Usher (2000) discuss the importance of engaging in epistemological and ontological debates suggesting that philosophical issues are central to the research process and that consideration of these has been lacking within some educational research. From this perspective, it would appear that there is a relationship between epistemology and the research technique chosen such that a researcher's perspective on how social reality is studied would privilege certain research methods. By contrast, Bryman (1988) proposes that differences between research paradigms lie in the minds of philosophers rather than in the practices of researchers. Thus rather than engage in the epistemological debate, the real debate is a technical matter. Of issue in deciding upon a research approach is a critical examination of the suitability of that approach in relation to answering the research question(s). In this way the strengths and weaknesses of both qualitative and quantitative methods can be considered in relation to their possible contribution to research. Furthermore, both methods may be combined to illuminate the research question in greater detail (Entwistle and Ramsden, 1983), since as Entwistle (1988b) states, "In educational research it is particularly important to use the complementary strengths both of different research strategies and of different methods of collecting data" (p. 25). In formulating the design for this present study the stance taken is to consider the technical viability of different research methods rather than engage in a philosophical debate.

The research by Selmes (1986; 1987) might suggest an experimental design where an intervention was devised that sought to improve pupils' use of study strategies. Pupils

could be tested on their ability to study effectively before and after the intervention, with an experimental hypothesis that there would be a difference in performance on the two occasions. By adopting a repeated-measures design aspects of individual error could be taken into account, although there might well be carry over effects on the second test occasion. Alternatively, a control group could be established to enable comparison between two groups of pupils: one group of pupils would receive training in the use of study strategies and the other group, acting as the control, would receive no training. Given the indications from the literature review of the multiple variables involved in effective studying, it might be that a number of different interventions were planned with matched groups of pupils, to enable a comparison between different methods of enhancing the use of study strategies and a control. The data collected would be quantitative and afford statistical analysis.

The value of adopting an experimental design is that the researcher seeks systematically to control specific variables and to measure subsequent outcomes, although here it would be difficult to control for confounding variables. Criticisms in relation to ecological validity are apparent, with questions raised about the appropriateness of generalising from the experimental case to others. There are also concerns with the effect on the pupils who participate since, with regard to the focus of this research, an experimental design might generate ethical problems in terms of manipulating the experiences of school pupils. The experimental design would appear discriminatory since some groups of pupils would appear to receive preferential treatment (Scott and Usher, 2000). Regarding the feasibility of an experimental approach, it is unlikely that schools or groups acting as the control would wish to participate if they felt there were to be no immediate benefits. What, though, would an experimental design contribute that furthered an understanding of experiences of studying? How would pupils'

perceptions of studying be measured? What specific study strategies would form part of the intervention, and how would previous experiences of pupils and their differing levels of study experiences be accounted for? As yet, research within secondary schools gives little indication of how pupils' perceptions of studying might be measured, so it seems unlikely that an experimental design would offer a reliable approach given the lack of a clear theoretical foundation.

Concerns about ecological validity might point towards a research method founded on observation since this could be carried out within a naturalistic environment and could be deemed more appropriate. A decision would need to be made in terms of whether the observer was a participant or non-participant, although, as McIntyre and MacLeod suggest, "The problem of ignorance of the observer's influence, is of course, one which is common to all observational approaches" (1986, p.18). Possibilities, though, include narrative accounts and unstructured participant observation, video-recording and systematic observation.

Of the observational methods available, systematic observation looks at behaviour within a specific setting and has been used extensively within the classroom environment. Taber (1992), for instance, designed an observation schedule to explore whether girls have fewer interactions with teachers than boys in physics lessons, and Merrett and Wheldall (1992) employed an observational schedule to investigate differentiated teacher responses to male and female pupils in junior and secondary schools. Systematic observation, according to Croll (1986, p.1), "is the process whereby an observer or a group of observers devise a systematic set of rules for recording and classifying classroom events". Such research procedures are explicit in their purpose, rigorous in the categories for classifying behaviour, produce data that can

be presented in quantitative form and require the observer, once the observation schedule has been devised, to follow the instructions to the letter. The aim of using such a schedule is to focus on particular aspects of behaviour, to remove the subjectivity of the observer(s) and to generate coded data that leads to further analysis.

It would seem possible to devise a systematic observation schedule that looked to record study behaviour within the classroom environment. There are practical benefits in that systematic observation enables results to be expressed in quantitative terms and large quantities of data could be collected from a number of classrooms. It might also enable consideration of whether experiences of studying change during the two-year GCSE course since observations could be carried out at different periods of time and comparisons made. Once gathered, the information could be analysed to look for frequently occurring patterns of behaviour that might encompass time on task and asking for help from a teacher or friend.

Critics of systematic observation suggest that it is too prescribed and that prespecified coding schemes are self limiting (Delamont and Hamilton, 1986). Thus, during observation, behaviours are only recorded if they fit the schedule, since schedules focus on overt, observable behaviour and do not take account of intentions that lie behind behaviour or the effect of the observer. To counter this, some researchers have employed both systematic observations schedules and qualitative field note taking when carrying out observations (Myhill, 2002; Younger and Warrington, 2002). However, even if qualitative and quantitative observational techniques were employed, concerns arise given the focus of this research since not all aspects of perceptions of studying can be accounted for by observable patterns of behaviour. One effective metacognitive strategy involves the reader slowing down when reading a difficult passage of text so

that the meaning becomes clear, but how could this be observed? A pupil appearing to stare out of the window might be mentally self-testing that the work had been understood yet this would most likely be recorded as time off task. Observation would also fail to take account of other variables that might be important, such as the home environment, homework and parental involvement. Thus, while systematic observation is concerned with the objective reality of the environment it is not an appropriate vehicle here, even if used in conjunction with field notes with which to interpret pupils' metacognitive strategies or to understand the meanings of social processes within the classroom that might impact on pupils' experiences of studying.

The notion of social processes is important since it draws attention to a number of issues that may have an influence on perceptions of studying, including teacher-pupil relationships, peer-groups and home environment. Given these factors, research that enables insight into behaviours studied in everyday environments might afford greater understanding of experiences of studying. One possibility, operating within a qualitative framework, is seen in ethnography where a multimethod approach is adopted that may include observation, interviews, field notes and analysis of records. Indeed, the adoption of different methods can be viewed as a strength of this type of research, since, rather than relying on one set of data, the findings are arguably method independent and can be validated by triangulation. Ethnography is often seen as exploratory research (Robson, 1998), with the ethnographer working closely with a specific group of people in order to provide a description that effectively interprets the experiences of the people within the group as seen from their perspective. Fundamental to the research process is the concern with the interaction of factors and events, and the embedding of the research in the social world that is being studied.

The school environment would appear well suited to an ethnographic approach in providing naturally occurring aspects of social life that can be studied within defined boundaries. In looking at differential attainment among school pupils, ethnographic studies have made a positive contribution to educational research. Some studies have looked to explore social processes in terms of the link between school performance and social class (Hargreaves, 1967; Lacey, 1970; Ball, 1981), while others have examined ethnicity (Fuller, 1980; Mac an Ghaill, 1988; Gillborn, 1990; Mirza, 1992; Bhatti, 1999). It would appear possible to adopt an ethnographic approach to explore pupils' perceptions of studying that would enable consideration to be given to the range of factors that might mediate. Such an approach would also provide a means to explore whether pupils' perceptions of studying altered during the duration of the GCSE course by carrying out the research over the two-year time period that the GCSE entails.

There are limitations, though, in that ethnographic studies are intensive, often carried out within one school and focus on a relatively small group of pupils (Gillborn and Gipps, 1996). Thus there is an apparent trade off between the level of detail and the number of 'cases' that may be included. For this reason it is unlikely that wider generalisations about perceptions of studying could be made. There are criticisms, too, that pertain to the influence of the ethnographer in interpreting the findings (Scott and Usher, 2000), since the methods chosen are open to multiple interpretations. Given that ethnographic research tends to focus on small groups of people the sample considerations are of high importance. Regarding this research, focusing on small groups of pupils that comprised boys or girls would restrict the nature of the findings, as would consideration of pupils of differing ability levels or socio-economic backgrounds. The research focus here is to provide a wider understanding of pupils' perceptions of

studying across a range of social groups and ability levels which would not be possible within an ethnographic study.

Given the limitations of an ethnographic study, it might be that a survey approach would be more appropriate. Surveys offer the possibility to utilise a variety of data gathering techniques encompassing self-completed questionnaires and attitude scales. Question formats include open or closed questions, and, dependent on these, a range of response formats from free response to yes/no answers and rating scales where responses lie on a continuum. The self-completed questionnaire is common within research since a specific audience can be targeted, a large amount of data collected, the questions broken down into subsidiary areas of interest and an effort made towards standardisation. While mindful that Marton and Saljo (1976a; 1976b) used interviews in their phenomenographic research concerning students' approaches to learning, of relevance to this study is that subsequent researchers often adopted a questionnaire approach to further this area of research.

The Approaches to Studying Inventory (Entwistle, 1988a) was developed as part of a research programme that initially sought to confirm Marton and Saljo's findings through quantitative analysis. Since then the inventory has undergone several revisions, such that the Short Inventory of Approaches to Studying (Entwistle, 1988b) contains 64 items as opposed to the previous 106. Similar in concept is the Studying at School Inventory (Selmes, 1987), designed for self-completion, in which students were required to respond to a series of attitude statements concerning their approach to studying using a five-point Likert scale. The Studying at School Inventory was designed as a means to describe and provide a measurement of changes in pupils' approaches to study tasks and related study attributes (Selmes, 1987). Problems exist,

though, in that both these inventories were initially targeted at a different age group to that of the intended research, but more importantly were designed before the implementation of the GCSE at a time when O Levels and A Levels were more reliant on didactic instructions and examinations. Thus, for instance, while the Entwistle Short Inventory of Approaches to Studying (1988b) looks to analyse whether students adopt a deep or surface approach to learning, the questions do not reflect the multiple nature of assessment at GCSE in terms of coursework, examinations and practicals. There are problems, too, with the nature of the questions, and the use of language appears inappropriate for 14-16 year old pupils in the twenty-first century. Similarly the inventory devised by Selmes (1987) gives no consideration to the disparate elements of GCSE assessment and hence the variety of study strategies that might be required. One further aspect that is omitted concerns the increasing impact of information communications technology which may be relevant in terms of the ability to redraft coursework, the use of specialist websites for revision, or the use of the Internet and CD-ROMs as a source of information for research.

At this point it is important to distinguish psychometric tests from questionnaires, since the inventories designed by Selmes (1987) and Entwistle (1988b) claim to have psychometric properties. Psychometric tests have become an established branch of psychology and include numerous tests devised over a period of time looking to measure a range of factors including intelligence (e.g. Wechsler Intelligence Scale for Children, Wechsler, 1974), ability (e.g. Differential Aptitude Tests, Bennet et al., 1962), and personality (e.g. Eysenck Personality Questionnaire, Eysenck and Eysenck, 1975). A fundamental property of any psychometric test is that it produces numerical scores that once manipulated can be compared to normative data or examined for other meaningful properties (Bartram, 1990). Both Selmes and Entwistle sought to provide a

measure of students' approaches to studying in relation to the adoption of deep or surface approaches and related study attributes. As part of this procedure they drew upon the body of literature, mainly from research into higher education, into generalised approaches to studying, and grouped questions into scales using factor analysis. An underlying assumption was that approaches to studying were consistent. This is not the stance taken with the present study; rather the aim is to develop a context-related questionnaire to explore students' perceptions of studying for a specific set of high stake examinations. Given the powerful findings regarding the backwash effect of assessment on learning, it was felt that the starting point for the research should be the assessment procedures that the GCSE entails.

The use of a self-completed questionnaire offers a distinct advantage over methods previously reviewed in terms of gathering a large amount of standardised data, and from a practical perspective would enable ease of completion by pupils within the school environment. Apparent, though, was the necessity to design a new questionnaire that contained relevant questions focusing specifically on pupils' perceptions of studying for GCSE. Were the questionnaire to utilise a rating scale then it would be possible to explore students' overall perceptions of studying for GCSE, as well as considering their perceptions of studying for specific elements such as examinations or coursework. A further, but critical, consideration in formulating the research design was the requirement to take account of prior knowledge and subsequent success at GCSE, since previous research within schools has often failed to make the link between perceptions of studying and examination success. Key Stage 3 SATs data would provide a suitable numeric measure of prior knowledge and success at GCSE could similarly be accorded a numeric outcome measure by totalling the scores for all subjects for each pupil. Here the standard convention whereby A*=8, A=7... G=1 would provide a GCSE score that

reflected the number of passes and grades (Demack et al., 2000). In addition, calculating the mean GCSE score would remove discrimination against pupils who have taken fewer examinations due to school policy. With these measures in place it would be possible to explore the relationship between perceptions of studying and GCSE success in a systematic way that has not been seen in research to date.

While the adoption of a questionnaire affords a useful medium for exploring perceptions of studying, it is acknowledged that this quantitative approach might suffer from a lack of depth. However, a questionnaire study could be supported by interviews carried out with GCSE pupils. Interviews, according to Cannell and Kahn, are "a two-person conversation initiated by the interviewer for the specific purpose of obtaining research-relevant information and focused by him on content specified by research objectives of systematic description, prediction, or explanation" (1968, p.527). While a range of possible interview procedures exist, it is important to consider how these might relate to the data gathered from a questionnaire. Structured interviews, in which pre-set questions are asked of all respondents, appeared unsuitable since these would contribute little more to the questionnaire data. Semi-structured interviews were a possibility, and within this research context would offer some flexibility by which the interviewer would be able to respond to areas of concern introduced by a pupil about their experiences of studying but would also maintain an element of standardising the questions asked. This qualitative approach to gathering data would enable students' perceptions of studying for GCSEs to be explored in a way that took account of the students' experiences and their understanding of reality. Specific concerns could be probed more deeply than by questionnaire, and it might be that new insights and ideas were afforded. There are reservations, though, about carrying out one-to-one interviews with single pupils during adolescence, since the power balance within an interview

situation could appear threatening and not conducive to a comfortable dialogue (Warrington and Younger, 1999).

By contrast, group interviews, whereby a number of pupils are interviewed together, might provide a possible solution. By definition a group should be understood to contain more than two interviewees at a time (Watts and Ebbutt, 1987), and here the role of the interviewer can be seen as quite different from that in the one-to-one interview. Rather than simultaneously conducting several individual interviews, Walker (1985) suggests that the interviewer's task is to "facilitate a comprehensive exchange of views in which all participants are able to 'speak their minds' and respond to the ideas of others" (p.5). It is this sense of interaction that enables discussions to develop and gives rise to the suggestion that group interviews generate a wider range of responses than are found in individual interviews (Watts and Ebbutt, 1987). In fairness, there are disadvantages in that the views held by individual pupils on experiences of studying would be difficult to follow up, and power hierarchies within the group might influence levels of participation (Robson, 1998).

The question remains, though, as to the purpose of the interviews and how they might enhance the research findings. Would the function be to gather more data that supplemented the quantitative findings, or might the interviews provide a means of confirming and allowing more in-depth discussion of some of the major issues arising from the initial quantitative findings as supported by the literature? With this in mind it seemed important to consider focus group interviews, since these afford a different type of interview to the above in that a distinctive feature of a focused interview is that the researcher has carried out previous analysis of the situation in which the participants are involved (Cohen and Manion, 1998). A focus group, as defined by Krueger (1994), "is

a carefully planned discussion designed to obtain perceptions on a defined area of interest in a permissive, nonthreatening environment" (p.6). Usually focus groups comprise six to ten people, although smaller groups, sometimes called mini-focus groups, have been used effectively, since groups of four or five participants can afford a greater opportunity to share ideas (Krueger, 1994). Vaughn et al. (1996) suggest that one of the major advantages of focus groups is their 'loosening effect' in that in a relaxed setting, in which opinions are valued, participants are more likely to express their perceptions openly. It is this that lends to the appeal of focus groups for this research.

Within education, focus groups have been used to explore a range of issues and concerns among young people (Vaughn et al., 1996; Warrington and Younger, 1999; Denscombe, 2000) and although one possibility was to adopt an exploratory approach, here a phenomenological approach was seen as more appropriate. In this way a more in-depth understanding of pupils' perceptions of studying for GCSE could be gathered that drew on the literature reviewed and the initial analysis of questionnaire data. As such, it would be fitting to design interview schedules that, upon analysis, sought to confirm existing knowledge and ideas.

2.2 Research design

In the manner effectively captured by Parker (1994), this empirical research used two complementary methodological elements to gather quantitative and qualitative data over a two-year period. Quantitative data, derived from a questionnaire designed to explore perceptions of studying, formed the main research component and thus situated the research design within a positivist-empiricist framework. This, though, was enhanced by qualitative data, gathered from focus group interviews, which afforded greater

insight into pupils' experiences of studying. In addition, pre-existing data in the form of Key Stage 3 SATs results for all individual pupils was collated to provide a measure of prior knowledge. Finally, GCSE results for all pupils were gathered in August 2003 which enabled the relationship between perceptions of studying and GCSE success to be explored while taking account of prior ability.

Given the research focus it was important that the sample was balanced in terms of gender, included pupils from a variety of social backgrounds and encompassed a range of ability levels. The schools involved were drawn from a range of Local Education Authorities, situated in and around London, and included selective and non-selective schools encompassing pupils who could be regarded as high, middle and low achievers. A mixture of single sex and co-educational schools was included. Participants were drawn from Year 10 pupils in each school who were tracked through Year 11 until receipt of their GCSE results. Given the number of variables to be considered, it was important that the sample size was sufficiently robust to accommodate satisfactory analysis. For this reason it was intended that eight schools would be involved in the research, generating a sample size of over 800.

In practical terms the use of a questionnaire meant that larger amounts of data could be collected from all pupils than would be possible if the sole method of data collection was reliant on interviews. That all pupils responded to the same questions lent the data to statistical analysis and comparison. All pupils were able to complete the questionnaire in their school environment during tutor time, which meant that there would be minimal disruption to their normal routine. Similarly, the administrative burden on the teaching staff would be minimal. By designing a questionnaire that comprised short items, most of which were responded to by tick boxes, meant that it

appeared straightforward, non-threatening and not too arduous. The adoption of a rating scale for most questions, whereby pupils were asked to respond in terms of whether they strongly agree, agree, disagree, strongly disagree or occupy a neutral position in relation to the statements, enabled flexibility of response. The anticipated time to complete the questionnaire, less than twenty minutes, was such that pupils would not become bored. Furthermore, pupils frequently complete questionnaires during their time at school and thus this medium was quite familiar to them.

With any questionnaire there is a concern about standardising the questions, especially with regard to whether all participants have the same understanding of them. By piloting the research instrument on a group of participants representative of those included in the final study, it was intended that any areas of confusion could be identified and subsequently revised.

Focus groups interviews were carried out with groups of four pupils from a number of the schools after all participants had completed the questionnaire. Pupils were selected to provide a representative range of ability, gender and socio-economic status. It was intended that the schools select the pupils for interview, that friendship groups were chosen and that all groups were single-sex. With regard to the latter decision, this was in accord with other researchers who recommend same-sex participants when interviewing children (Vaughn et al., 1996). While some of the literature on focus groups advised against the use of participants who know each other, Krueger (1994) suggested that the rule for selecting participants was one of commonality rather than diversity. Further support for selecting friendship groups when interviewing adolescents came from Warrington and Younger (1999), who felt that friendship groups encouraged greater sharing since the pupils felt more confident. It was hoped that by

adopting this approach pupils would feel more at ease with each other and also less threatened by the power imbalance created between the interviewer and themselves.

The focus of the interviews was to explore pupils' self-awareness of metacognitive strategies and the factors that may mediate their perceptions of studying. While the preceding literature review points towards certain issues, it is important to appreciate that the final design of the interviews rested on initial analysis of the questionnaire data and the concerns that this raised. Anticipated areas of focus included students' experiences of coursework and examinations; whether they spent time thinking about how they study; whether they adapted things to help with their studying; their use of help-seeking strategies, and the value placed on obtaining their GCSEs. By piloting the interview on a group of pupils representative of the intended participants it was hoped that any misunderstandings could be clarified and that, upon reflection, other areas of concern might be identified for inclusion.

2.3 Planned data collection

An important aspect of the research design involved the longitudinal collection of data, with all pupils responding to questions about their perceptions of studying at two points in time: once during Year 10 and once during Year 11. These occasions were approximately one year apart and enabled insight into how experiences of studying varied as pupils progressed through the GCSE course.

A further consideration in scheduling the data collection encompassed how this sat within the context of the academic year, including any pressures created by internal school events such as practice examinations and coursework deadlines. It was intended that when in Year 10 pupils completed the questionnaire at the end of the spring term or

beginning of the summer term 2002 as this was convenient for each school. In Year 11 pupils completed the questionnaire during the spring term 2003. There was a clear rationale for this. By March 2002, pupils in Year 10 had completed internal assessments relating directly to their GCSEs; had settled into the rhythm of lesson structure and homework patterns at this level, and begun GCSE coursework in many subjects. When in Year 11, pupils had undertaken formal school mock examinations in December or January and were required to submit all coursework by the end of the spring term.

Similar consideration was given to the timing of the interviews. Thus the first sets of Year 10 pupil interviews were scheduled within the summer term 2002 after pupils had completed internal school examinations. The second set were scheduled during the spring term of Year 11 before the pressure associated with the immediacy of GCSEs became too great. Of interest was whether pupils demonstrated a higher level of metacognitive awareness when the follow-up interviews occurred in Year 11 and whether their perceptions of studying for GCSEs had altered. All interviews were tape-recorded, then transcribed and analysed for emerging themes.

Ethical considerations will be discussed during the main study (see 3.4.4).

2.4 Summary

Consideration of different methodological approaches to explore pupils' experiences of studying for GCSE led to the adoption of two complementary research strands. Quantitative data was gathered using a context-related questionnaire completed individually by pupils at two points during their GCSE courses. Focus groups, again carried out with pupils over the duration of the GCSE course, enabled greater insight

into pupils' perceptions of studying for GCSE. By adopting a longitudinal approach to gathering quantitative and qualitative data from a wide-ranging sample it was hoped that this research would make an original contribution to understanding the complexity of the issues surrounding pupils' perceptions of studying for GCSE.

CHAPTER 3: ACTUALISING THE RESEARCH

3.1 Development and refining of the research instrument

3.1.1 Origin of the research instrument

The research instrument developed for the present study built on a previous instrument that was designed to explore differences in approaches to studying among high achieving pupils for coursework and examinations at GCSE (Rogers, 2000). As such it is important to have an understanding of how the initial instrument was designed and to consider how the instrument was subsequently developed for use in the present research. In designing the questionnaire it was hoped that the final instrument would be written in a style that was appropriate for the intended recipients, contemporary and understandable, and that the content of the questions would relate directly to the practical experience of pupils as they study for GCSEs. It was also important to ensure that the questionnaire was rigorous and valid: hence the procedures for designing a psychometric test, as outlined by Rust and Golombok (1995), were adopted, although the questionnaire was not intended to have psychometric properties. The questionnaire was not intended to measure a consistent approach, as in the work of Selmes (1987) and Entwistle (1988b), but rather perceptions of studying for a particular set of examinations.

Before designing the questionnaire, the opinions and attitudes of teachers and pupils were sought with regard to how they felt students perceived their GCSE studies. An initial brainstorming session with a group of teachers, who as practitioners were experienced in the teaching of GCSE over a period of years, led to the drawing up of a list that identified areas of possible concern with respect to pupils' experiences of studying for GCSE. Specific concerns included time management, revision strategies, homework, ability to research, and the different assessment demands of coursework and

examinations. Also included were mediating factors such as friends and the home environment.

The list was then presented to a small group of Year 10 pupils who were interviewed by the researcher. The purpose of the list was to provide a starting point for discussion without any desire to influence the pupils. It was hoped to gain an insight into how they, as pupils, perceived the demands of GCSEs and also any problems they might have. The researcher knew and had an easy relationship with these pupils so it was hoped that they would not feel anxious about discussing their work. During the interview it was clear that the pupils expressed some anxiety about the requirements of GCSE. Of particular concern was the dilemma posed by the time demanded by coursework and the need to balance this with the necessary practice and revision for examinations.

This initial qualitative approach to gathering data, as a prelude to beginning the design of the questionnaire, was a formative part of the procedure. Entwistle (1988a) is critical that too often research into student learning has been founded on an unconvincing rationale that has ignored students' own experiences. By drawing on pupils' descriptions of studying for GCSE, together with the experience of teachers, it was hoped that a clear framework for the questionnaire would be provided. Rust and Golombok (1995) suggest that a grid format is adopted in the design of a questionnaire with content areas along the horizontal axis and manifestations along the vertical axis. Content areas cover everything that is relevant to the purpose of the questionnaire. The approach taken here in interviewing the pupils and holding the discussion with teachers was to ensure that the content areas covered everything that was relevant to understanding perceptions of studying for GCSE. Based on the pupil interview and the

discussion with teachers, five content areas were established as forming the basis for the questionnaire:

- coursework strategies
- examination strategies
- homework strategies
- study strategies
- research strategies

The manifestations, namely the ways in which the content areas manifest themselves (Rust and Golombok, 1995) for inclusion, were established in a similar manner. Of importance in settling upon the manifestations for the questionnaire were the comments made by pupils during interview. It was noteworthy that many of these were in accordance with the views of their teachers. The manifestations included were:

- time management
- anxiety
- revision strategies
- independent learning
- workload
- access to a computer and the Internet

The most common types of items used in questionnaires are alternative choice, multiple choice and rating scale. Given that this questionnaire was not knowledge-based, alternative and multiple choice items were inappropriate (Rust and Golombok, 1995). Rather a rating scale approach was selected as a means to gather a large amount of

information. All items were scored on a five point Likert rating scale where 1 = strongly disagree to 5 = strongly agree. In adopting a rating scale possible responses would lie along a continuum whereby pupils could express themselves quite precisely with regard to the items. It was hoped that this would elicit a subtle response pattern to the questions and yield high quality information. This was similar to the approach adopted by Entwistle (1988a; 1988b) and Selmes (1987).

Items were written for each content area in turn so that all manifestations were covered. Of importance was the need to couch questions in a language understood by pupils and one that was applicable to GCSEs. Where possible, ideas were used that had arisen during the initial pupil interview. Thus, for instance, one pupil said, *I prefer exams because the coursework you don't get help from teachers, as much.* This formed the basis for the item "I get anxious about coursework because you get less help from the teachers". In discussing examinations, another pupil commented, *Besides which I can't make notes. I just have to read over my notes.* This was adapted to become "I find it difficult to make notes for revision".

On a functional level there was a necessity to consider acquiescence, whereby respondents tend to agree with items rather than considering the content of each item (Rust and Golombok, 1995). Thus variety was sought in the number of positive and negative statements so that those completing the questionnaire did not always have to agree. It was important to keep the items concise (Oppenheim, 1992) and to ensure that there would be no misunderstanding on the part of the pupils when they completed the questionnaire. A psychologist reviewed all questions and the content of the questionnaire to ensure that is was representative of the area that it was intended to cover, namely perceptions of studying for GCSE. This was to ensure the content

validity of the questionnaire (Coolican, 1994). The questions were seen as appropriate for the intended sample. Some fifty items were generated that were felt suitable for use with this age group and relevant to GCSE. Following a further review, forty-two items were selected for inclusion, since they were perceived as being more relevant to the focus of the research (see appendix 1).

Three hundred and ten Year 10 and 11 pupils from two high achieving single-sex schools completed this initial version of the research instrument. The normal distribution achieved for the total score and the content areas suggested that the questionnaire had been effective in drawing out a range of individual responses. From the pupil perspective the questionnaire appeared straight-forward to complete, did not take a vast amount of time and did not cause anxiety.

3.1.2 Development of the research instrument

While the initial version of the research instrument had been successful in enabling an exploration of coursework and examinations, given the present research focus there was a need to review all questions to ensure that sufficient consideration was given to study skills and strategies, metacognitive awareness and other factors that may mediate. Each content area was examined in turn, which gave rise to new questions, the re-writing of questions that had been felt unsatisfactory and the splitting of questions into two separate questions to avoid any ambiguity in response.

Coursework questions

Two of the original questions were split into two separate questions in an attempt to gain greater clarity in the responses. Thus *I get anxious about coursework because you get less help from the teachers* became two questions: *I get anxious about coursework*

and *I feel that you get less help from your teachers for coursework.* Similarly, *I find that coursework tends to pile up so I end up working really hard at the end* was split into two questions since it was realised that it is possible to have to work very hard before submitting coursework but this does not necessarily mean that the coursework had piled up.

Three new questions were also added. The first to look at how students perceived and managed the volume of work that was required: *It's difficult to manage the time required for coursework since there is no limit to what could be done.* The other two questions were to explore whether students evaluated their work by being self-critical of earlier drafts: *I make sure that I check all my coursework drafts for any mistakes to see if I can improve* and *I tend to do several drafts of coursework before submitting the final piece of work.*

Examination questions

Three of the original questions were adapted. *I tend to revise in short bursts* was extended to include the phrase *because I concentrate better that way* so that a clearer association could be made between the choice of strategy and possible study benefits. *I don't feel that I do my best in exams* was felt to be too vague since there was no suggestion as to why performance might be perceived to be disappointing. Furthermore, the initial questions contained no specific reference to anxiety and examination performance, which on reflection seemed an oversight. Hence the question became *I get anxious about exams because I don't feel that I do my best.* The final alteration concerned *I find learning facts for exams rather tedious* since it was felt that this did not contribute to understanding effective perceptions of studying. Instead *I vary the amount of revision I do depending on whether I find the subject easy or difficult* was

included to explore whether pupils discriminated about their ability in different subjects and adapted their revision accordingly.

New questions looked to assess levels of self-awareness when preparing for examinations and whether students were sufficiently aware if they knew something: *I don't feel confident in assessing whether I know something or not.* It was also important to discern whether pupils felt there was too much to revise, since from a teaching perspective most of the work for GCSE is cumulative and emphasis in the examination is placed on interpretation rather than the repetition of facts. The following was added: *Most of the exams are based on the work that I have done during the GCSE course so I don't feel that there is much to revise.*

Building on this, it seemed worthwhile to consider whether students discriminated in the level of revision required: *I tend to revise more for subjects that I find difficult*, or whether in some cases the level of difficulty was such that avoidance tactics were employed: *If I know I don't understand something then I avoid those questions.* To look at specific strategies and to explore whether students differentiated between understanding and knowledge of facts, three questions were included: *I feel that I have to spend hours rote-learning facts for a lot of exams*, *When revising I usually test myself to check that I understand everything* and *When revising I usually test myself to see if I remember things*. Other strategy questions related to possible resources available to improve learning: *I usually use revision guides to help me prepare for exams*; *I find websites (e.g. BBC Bitesize) helpful when revising for exams* and *I go through lots of practice questions and past papers to help prepare for exams*. These last two questions, while relating to the use of additional material, also highlighted an active decision to improve performance by practising for examinations.

Homework questions

One question was changed in an attempt to make the language more relevant to the pupils, thus *If I don't feel that homework is important then I do the minimum* became *If I don't feel that homework is important then I do it in the shortest time possible.* Four new questions were added, one simply to explore where pupils most frequently do their homework: *I usually do my homework at school.* The other three sought to enable an understanding of how pupils experienced their homework in terms of managing the amount they received: *I try to plan my homework so that it is manageable,* and whether they were aware of effectively scheduling work for completion: *The amount of work varies so much it is difficult to plan my work* and *I always plan what homework I have to complete by the next day.*

Study questions

Four questions were adapted, the first two so that the link between study strategies and self-awareness was explicit. *I find it helpful to work with music playing* became *I find it helpful to work with music playing because it helps me to concentrate*; and *I prefer working in front of the TV* became *I often work in front of the TV because it prevents me from getting bored.* The third alteration was made to the question *I have a set area in which I always do my work* since it was felt that pupils might work in a variety of places, whether at home, school or with friends, and that what was really required was to explore whether pupils actively manage the learning environment to the benefit of their studies. The question was re-written to become *Wherever I'm working I make sure that I feel comfortable so that I can focus on what I have to do.* Similarly *I usually find some time to relax each evening* was adapted to *I find it difficult to organise my work so that I have some time to relax each evening.*

The new questions focused on self-awareness in terms of the quality of the work produced, the ability to be self-critical and response to criticism. In terms of understanding, the new questions were: *I know what I need to do to get a good mark, I am aware when I don't understand things* and *I'm unsure whether my work is any good or not. I spend time being critical of my own work since it helps me to produce better work* was added to investigate whether students actively engaged in self-appraisal of their work. From this followed two further questions to explore whether students were aware of adopting specific strategies in response to their self-reflection: *I often re-read things if I don't understand the first time* and *If I am unsure about things then I make an effort to improve my understanding.*

The two questions about feedback looked at how pupils' responded to criticism from a personal perspective: *I find it hard to accept criticism of my work,* and whether they actively made use of it: *I make use of the feedback from teachers since it helps me to improve.* Finally, a question reflecting task variables was added: *If my work isn't going well then I find it helpful to change to another task for a while and then go back.*

Research questions

For clarity, *I need to make lots of notes about a topic before writing an essay* was adapted to become *I tend to make lots of notes about a topic before feeling confident enough to write an essay,* since the intention was to explore differences in self-assurance relating to research and writing. Of the four new questions, two aimed to explore whether students had study strategies in place when they found things difficult: *If I find my work difficult then I look things up in other books,* and *If I feel unsure about something then I ask for help from someone else.* The other two questioned whether pupils were able to synthesise information: *I like gathering information from a range of*

sources and then forming my own opinion and *I find it difficult to summarise information.*

Background information

From the literature reviewed previously it seemed likely that the nature of the way studying was approached was mediated by age, aspirations, perceptions of school and socio-economic status. It also appeared that other factors, including parental involvement in schoolwork and facilities at school, may mediate. In addition to the questionnaire above, it was therefore necessary to design a series of questions that would elicit this information.

For ease of completion, the layout of the questions was such that most could be answered by ticking boxes; it was also hoped that this might provide greater accuracy in the responses. The first set of questions provided personal information about gender, date of birth, ethnic origin and whether English was an additional language. Given the rise in computer technology and the learning opportunities afforded by both computer and Internet access, it was felt sensible to know what type of provision pupils had at home. Three questions were asked referring to whether computer access was available at home, whether pupils had their own computer and whether Internet access was available.

To gain some impression of pupils' perceptions of education and their future aspirations, questions were asked about the importance of doing well in GCSEs, what pupils intended doing after GCSEs and what career they would like to follow. The importance of GCSEs was scored using four options: very important, quite important, don't mind and not important. A similar system was used to assess how much

schoolwork was discussed with parents, but this time the responses included all the time, a lot, sometimes and not at all.

The occupation of both parents was requested so that this could be coded according to the Registrar General's classification (1990) to provide a measure of social class. This schema results in a seven-category measure of social class based on occupation comprising the following groups: professional occupations, managerial and technical occupations, skilled non-manual occupations, skilled manual occupations, partly-skilled occupations, unskilled occupations and the armed forces. Note that the armed forces category is distinct from the other occupational groups since those working in the armed forces are not classified to a social class category owing to the limited information on precise occupations in the armed forces (McKnight and Elias, 2003). Similar to Demack et al. (2000) the parental occupation with the higher status was used in the classification process.

Finally, a series of questions were asked relating to homework. Pupils were asked to indicate the amount of homework on average that they completed for each of their GCSE subjects each week. Also they were asked to indicate whether they used facilities at school which helped with their studying; these included homework and computer clubs at lunchtime and after school. Lastly, they were asked where and with whom they did most of their homework: in school, at home, at a homework club, with friends or alone.

The final version of the research instrument therefore comprised two parts: the questions that provided background details about the participants and the questions that explored pupils' perceptions of studying (see appendix 2). All questions were reviewed

by a psychologist to ensure that the questionnaire was representative of the area that it was intended to cover: perceptions of studying for GCSE. This was to ensure the content validity of the questionnaire (Coolican, 1994). The questionnaire contained seventy-one items that were randomly arranged so that, for instance, all coursework questions did not follow each other. The middle option of the rating scale was placed at the extreme right of the page in an effort to encourage pupils to really consider whether 'don't know' applied to them. This was similar to the approach adopted by Entwistle (1988b).

3.2 The pilot of the research instrument

3.2.1 Method

Sample

Forty-seven Year 11 pupils from a non-selective, co-educational maintained school participated in the pilot. It was an opportunistic sample in that pupils were drawn from three form groups where the form tutors had indicated a willingness to be involved in the research. The school, from an Outer London Education Authority, had received a satisfactory Ofsted inspection in 1999 during which 85.5% of teaching was judged to be satisfactory or better. GCSE results gained by pupils in 2000 showed achievement to be inline with the England average whereby 47% of pupils gained 5 or more GCSEs at grades A*-C compared to the England average of 49.2%. The average GCSE point score for pupils was 38.5% compared to the England average of 38.9%.

The school served a wide catchment area drawing pupils from two other boroughs and had been over-subscribed for the last three years. More boys than girls attended the school and there was a sixth form of over 100 pupils where pupils studied for A Levels or GNVQ. The number of pupils learning English as an additional language was high,

approximately 40%. 17.6% of pupils were included in the special educational needs register which was in accordance with schools of this type. The percentage of pupils receiving free school meals was 27% which was higher than the national average. (Appendix 3 provides a breakdown of characteristics of the pilot sample.)

Procedure

The administration of the questionnaire was co-ordinated by the Head of Year 11 with the questionnaire being given to all participants by the pupils' form tutor. The questionnaire was self-administered in that pupils completed it individually, sitting in forms in a classroom environment known to them. Pupils were given a maximum of twenty minutes to complete the task, and the timing of the questionnaire, in terms of the school day, meant that all pupils had sufficient time in which to complete the task and did not feel under pressure. The questionnaire was completed early in the summer term prior to GCSE examinations and study leave. At the onset the form tutor read out a statement prepared by the researcher that explained the context of questionnaire (see appendix 4), although as Oppenheim (1992) warns care was taken in briefing the pupils so as not to introduce any bias. All pupils were told that the results would be confidential and it was reiterated that there were no right or wrong answers. The nature of feedback is always important, especially when dealing with pupils who are approaching an extremely stressful time in their educational career. As a debrief all pupils were provided with the opportunity to ask any questions which would then be passed on to the researcher.

All Year 11 pupils present on the day participated in the study and no attempt was made to influence the sample. Data from the questionnaires were collated and entered into

SPSS, version 10, for analysis. Ethical considerations are reviewed under the section describing the main study (see 3.4.4).

3.2.2 Analysis of the research instrument

The pupils found the questionnaire straightforward to complete. It took them under fifteen minutes and there was no indication that questions were unanswered either because pupils did not understand what was being asked or because they were reluctant to provide the information. There was no hint that the pupils became anxious at any time, indeed two of the participants commented that they had enjoyed completing the questionnaire because they felt the questions were relevant to them in considering how they perceived their study for GCSE. This supported the face validity of the questionnaire since from the pupils' perspective the contents of the questions seemed appropriate to their experiences of studying. No issues were raised for the researcher to address.

Item analysis

Item analysis was undertaken for the purpose of indicating whether some items should be removed from the final version of the questionnaire and also to explore how the different content areas were performing. Given that the questionnaire was designed to assess perceptions of studying, rather than being knowledge based, the most appropriate areas for investigation were the facility index and discrimination of each item (Rust and Golombok, 1995). Since the questions had been written to include positive and negative statements to avoid acquiescence (see 3.1.1), it was necessary to reverse the score of the negative statements so that all items were scored in the same direction. Scores were calculated for each participant over the entire questionnaire, the individual content areas and for each item.

Facility index

As Rust and Golombok (1995) indicate, items with a facility index approaching or equal to either of the extreme scores should not be included in the final version of the questionnaire. In addition, where the facility index approached the middle value it was essential to examine whether all respondents had chosen the middle option. That the rating scale went from 1 to 5 meant that the facility index must be between these values.

The facility index for the coursework content area ranged between 1.96 and 4.04, which suggested that the questions had facilitated a reasonable range of responses (full details appear in appendix 5). The highest facility index, 4.04, occurred with question 41, *I find it helpful to discuss coursework with my friends,* which was perhaps indicative of the value that students place on being able to discuss coursework with their friends. Other high values reflected the importance that pupils placed upon having access to a computer at home and the positive benefits of checking coursework drafts with care. Two questions returned a facility index of 1.96, which was the lowest facility index value returned over the entire questionnaire. These questions were: *I find that coursework tends to pile up* and *I usually have to work really hard at the end to complete coursework.*

Within the examination content area the values returned for the facility index ranged between 2.15 to 4.38 (see appendix 5). That high values were returned with reference to practising for examinations by using past papers, using revision guides and testing oneself when revising indicated that some positive strategies were being employed by pupils. Lower values for the facility index appeared to reflect pupils' anxiety over how well they might do and a sense of being overwhelmed with the volume of material to revise.

The values returned for the content area reflecting study strategies ranged between 2.51 to 4.72 (see appendix 5). The value 4.72 was the highest facility index returned across the entire questionnaire, suggesting quite positively that pupils had a level of metacognitive awareness about the need to re-read text as an aid to understanding. Feedback appeared valued from teachers and it seemed that pupils were organised, in terms of having the relevant materials ready when studying, although there was a concern with students not managing to organise their work so that they had some time to relax each evening.

The facility index for questions relating to homework strategies ranged from 2.4 up to 3.7, giving a smaller range of responses than seen for the other content areas (see appendix 5). Although the values obtained for the facility index were around the mid-point it was not as a result of pupils choosing the middle value as a safe option. Homework was regarded sensibly by most pupils but of concern were the large number of students who felt that homework was difficult to plan and the number who had to work long hours to complete it.

The facility index returned for research strategies ranged between 2.21 to 4.34 (see appendix 5). The facility index for the question about Internet use suggested that the Internet was perceived as an important research tool with less emphasis placed on going to the library. The question with the lowest facility index in this content area reflected pupils' concern with the need to write too many notes before feeling confident enough to write an essay.

In examining the entire questionnaire, it was apparent that the facility index reported for each item was indicative of a range of responses from all pupils (see Table 4). There

was no indication that pupils had consistently selected the middle option or either of the extreme values.

Table 4: Range of facility index for each content area from the pilot

	Content area				
	Coursework	Examinations	Study	Homework	Research
Minimum	1.96	2.15	2.51	2.4	2.21
Maximum	4.04	4.38	4.72	3.7	4.34
Range	2.08	2.23	2.21	1.3	2.13

The range of the facility index appeared similar within four out of five of the content areas: coursework, examinations, study and research. The most noticeable difference occurred with perceptions of homework.

Discrimination

The importance of examining discrimination lies at the heart of any questionnaire since it is this that examines the ability of each item to discriminate respondents in accordance to what the questionnaire is measuring (Rust and Golombok, 1995). Thus, given that the questionnaire was person based, individuals should respond to each item in a particular way. The essence of discrimination lies in the use of correlation; thus each item is correlated with the total score for the questionnaire. Here, given that there were five sub-sections within the questionnaire, it was necessary to correlate the individual scores with the total score for each of these areas. Using SPSS, Pearson's product-moment correlation coefficient was obtained for all items within each content area.

Correlation coefficients lie between -1 and 1. Within research of this nature a minimum correlation of 0.2 is acceptable; however, the higher the correlation between each item and each sub-section the better (Rust and Golombok, 1995). Kline (1990) suggests that a correlation of greater than 0.3 is required, although acknowledges that the ideal correlation coefficient is an area of considerable debate. It is also important to be wary of correlations that are quite high, greater than 0.8, since the aim is to design a questionnaire that measures a broader concept than any one item. With regard to this questionnaire two items displayed a negative correlation; fifty-nine out of a total of seventy-one items met the 0.2 level of acceptance and forty-six gave a correlation greater than 0.3. It was disappointing that the 0.2 level of acceptance was not met for more items; however, most items were felt to be good discriminators within their content areas. That only two negative correlations were generated was considered acceptable.

Within the coursework content area twelve out of sixteen questions met the 0.2 level of acceptance and there were no negative values (full details appear in appendix 6). It was surprising that question 1 on the importance of a computer for coursework returned such a low value of r (0.089). This might suggest that computer access was regarded as a pre-requisite for coursework. Within the sample, five pupils out of forty-seven did not have access to a computer at home but all of these made use of computer provision for homework at school either during the lunchtime or after school or both. Of interest was that the highest correlation found in this content area related to pupils' perceptions of coursework and whether they felt coursework provided them with an opportunity to explore their own ideas.

Within the examination content area, twenty out of twenty-two items met the 0.2 level of acceptance (see appendix 6). One of the two negative correlations returned for the entire questionnaire appeared in this content area and referred to whether pupils revise in short bursts since they concentrate better that way. The highest values returned for r reflected pupils' concern with memorising for examinations and levels of anxiety about whether they achieved of their best in examinations.

With regard to the content area study strategies, twelve out of fifteen of the questions met the 0.2 level of acceptance (see appendix 6). The one negative value referred to whether pupils cancelled seeing their friends or going out due to pressures of work. Those items generating the highest correlation values within this content area reflected whether pupils organised their work so that there was some time in which to relax each evening and whether they put in extra effort if they felt that they did not understand something.

For the content area homework strategies, eight out of nine items met the 0.2 level of acceptance with question nine returning the highest value for r throughout the questionnaire (see appendix 6). This asked whether pupils usually completed their homework at school.

Regarding the content area reflecting research strategies, seven out of nine questions met the 0.2 level of acceptance (see appendix 6). The item generating the highest value of r here was concerned with whether pupils went to the library for additional information. Question 47 which returned a low value for r asked whether pupils read more about areas that interest them.

Overall responses for the questionnaire

Means, standard deviations and range were calculated for each of the following: total score, total score for coursework, total score for examinations, total score for homework, total score for study and total score for research (see Table 5). In addition histograms, with the normal distribution curve superimposed, were plotted since this enabled visualisation of the score patterns. The near normal distribution found for the total score suggested that the questionnaire, itself, was effective in generating a range of responses throughout the sample. Hereafter each content area will be referred to as coursework, for example, rather than total score for coursework, or indeed, perceptions of coursework.

Table 5: Mean, standard deviation and range for each content area from the pilot according to overall scores

	Mean	SD	Min	Max	Range	Total possible
Coursework	51.40	6.55	40	68	28	80
Examinations	74.62	8.28	60	95	35	110
Homework	29.00	4.66	19	41	22	45
Study	56.08	5.07	44	68	24	75
Research	31.96	3.31	24	39	15	45
Total score	243.06	18.41	206	289	83	360

Means, standard deviation and range were also calculated for the responses to individual questions across each content area (see Table 6). Given the rating scale used for the questionnaire the maximum response obtainable was five and the minimum was one.

Table 6: Mean scores, standard deviation and range of the responses to individual questions in each content area from the pilot

	Mean	SD	Min	Max	Range
Coursework	3.21	.410	2.5	4.25	1.75
Examinations	3.39	.377	2.73	4.32	1.59
Homework	3.22	.518	2.11	4.56	2.45
Study	3.74	.338	2.93	4.53	1.6
Research	3.55	.368	2.67	4.33	1.66

In looking to examine whether relationships existed between any of the content areas and total score, Pearson's product moment correlation coefficients were calculated across all content areas (see Table 7).

Table 7: Pearson correlation coefficients for content areas from the pilot

		Coursework	Examinations	Homework	Study	Research	Total score
Coursework	r	1.000	.379**	.297*	.303*	.011	.697**
	Sig.	.	.009	.042	.039	.942	.001
Examinations	r		1.000	.308*	.323*	.131	.787**
	Sig.		.	.035	.027	.380	.001
Homework	r			1.000	.309*	.132	.616**
	Sig.			.	.035	.375	.001
Study	r				1.000	.074	.629**
	Sig.				.	.621	.001
Research	r					1.000	.301*
	Sig.					.	.001

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

As anticipated, due to the design of the questionnaire, all content areas gave significant correlations with regard to total score. Apart from research, values of r indicated significant correlations between coursework, examinations, homework and study.

3.2.3 Consideration of the outcome of the pilot and subsequent changes

Pupils found the questionnaire straightforward to complete, all finished within fifteen minutes and there was no evidence of anxiety. None of the pupils passed on any questions to the researcher; however, some commented that the questions were relevant to them in reflecting upon their experiences of studying for GCSEs.

The normal distribution achieved for total score suggested that the instrument was effective in generating a range of responses. The high level of correlation between each of the content areas and total score was anticipated due to the design of the research instrument. The pilot was successful in establishing the appropriateness of the measure. Although twelve questions had correlated less than 0.2, at this stage the aim was not to create a psychometric inventory and so this criteria was not felt to be important. None of the questions were misunderstood, they seemed valid from the students' points of view and it seemed unnecessary to make any changes to the main body of questions that looked to explore perceptions of studying. There was a slight query about how the research questions were functioning in relation to the other content areas. It might be though that the questions targeted in this content area, although making a contribution to perceptions of studying, as indicated by the significant correlation, look at a different aspect of experiences of studying.

The background questions provided useful supporting information and no changes to these seem warranted. Some additions, though, appeared necessary for use in the final study. One aspect that had been relatively unexplored in the pilot related to self-esteem and thus two questions were added, the first to gain an understanding of how confident pupils' felt about doing well in their GCSEs, and the second asking pupils to describe

the GCSE results that they thought they would get. A further question was included to ascertain whom pupils were most likely to ask for help.

Given that all the questions so far were closed-questions it seemed important to provide pupils with an opportunity to give any further information that was of concern as they studied for their GCSEs. Thus an open question was added at the end of the questionnaire: "Is there anything else that you feel is important in how you approach your studying for GCSEs that has not been covered in the questionnaire? Please comment if you wish." The completed questionnaire (see appendix 7) was printed on sheets of A3 folded to make four-page A4 leaflets.

3.3 Pilot of the focus group interviews

3.3.1 Developing the interview guide

An interview guide was developed to cover the main research questions. Given that the intention of the focus group interviews was to assess existing knowledge and understanding of perceptions of studying for GCSE the topics covered in the interview guide drew on the literature reviewed and the findings from the analysis of the Year 10 data. The aim was to use the interviews to triangulate and confirm some of the main findings and to enable these to be explored in greater depth. The purpose of the pilot was to ensure that all questions were understood, to enable any misunderstandings to be clarified and to identify any other areas of concern for inclusion in the final interview guide.

In developing the interview guide it was important to be sensitive to the different types of questions used in focus groups (Krueger, 1998). Relevant to this study were introductory questions, key questions and ending questions. A simple introductory

question, *Are you enjoying studying for your GCSEs*, was included at the beginning of the interview to enable pupils to relax and to encourage them to reflect openly on how their studies were progressing. As an introductory question, it was hoped that this would enable all members of the group to contribute to the discussion (Krueger, 1998). The nature of a focus group interview is to enable participants to interact with one another so that they share their feelings, attitudes and ideas about a given topic. It is this explicit use of interaction to generate data that distinguishes focus group interviews from group interviews. Here it was hoped that pupils would discuss their experiences and feelings about their perception of studying for GCSEs.

Key questions are those at the centre of the research interest (Krueger, 1998) and form the largest part of the group discussion. Here the key questions sought to explore the students' experiences of studying for the different elements of the GCSE and of different subjects; whether students altered things to help with their studying; whether students spent any time thinking about the way they studied; whether students felt that the way they studied could be more effective and whether students felt that next year might be different. For some of these questions a series of probes were devised; thus, for instance, in asking whether students altered things to help with their studying, the probes included: asking different people for help; different order of tasks; planning: revision, homework or coursework; using different resources and time management.

Finally, two ending questions were written. The first asked students to reflect on the most important aspects of studying for GCSE. As Krueger (1998) suggests, this type of question is useful since it can help to assign weight to the key issues arising from the discussion. The final question, was used as an 'insurance question' (Krueger, 1998) and asked if there were any other issues arising in relation to their experiences of studying

for GCSE. The purpose of this question was to ensure that critical aspects of perceptions of studying for GCSE had not been overlooked. The interview guide is presented in appendix 8.

3.3.2 Piloting the interview guide

Sample

Four Year 10 pupils from one of the schools involved in the research project took part in the focus group interview pilot. The teaching staff chose pupils who belonged to the same friendship group since this was felt to be more conducive to a relaxed atmosphere and of benefit to the discussion. Parental permission had been gained for the pupils to take part in the interview.

Procedure

The interview took place in a quiet room away from the main school classrooms. The layout of the room was arranged so that all participants were able to sit round a table and hence maintain eye contact with one another. The group was briefed about the nature of the interview and assured that all responses would be treated confidentially and that no information would be reported back to the school. It was made clear to the pupils that there were no right or wrong answers to the questions, rather that interest lay in gaining an understanding of their perspectives on studying. The use of a small tape-recorder was requested so that subsequently the interview could be transcribed for analysis and the pupils were informed that once transcribed the tape would be erased to ensure confidentiality. The pupils were assured that the recording would only be listened to by the interviewer and that no names would appear on the transcript. All pupils agreed to the use of the tape recorder.

The interview guide (see appendix 8) was used as the basis for the interview and ensured that all key topics were covered in the discussion. Once the interview was over all participants were given the opportunity for a debrief and to ask any further questions that they might have.

The interview tape was transcribed fully and a thematic analysis undertaken to identify key themes.

3.3.3 The outcome of piloting the interview guide and changes made

The quiet room set aside for the interview and the seating arrangements seemed to put the pupils at their ease and enable them to talk freely. The use of the tape recorder did not appear to have a negative impact on the interview. There was no evidence that the interview generated any anxiety among the students and during the debrief the students appeared genuinely interested in the research. They were appreciative that their perspectives on studying were being taken into account.

The pupils seemed at ease talking and appeared to welcome the opportunity to talk about their GCSEs and the problems that they experienced. At no time were the questions misunderstood and there was no evidence that they created any anxiety levels. That the four students were friends seemed appropriate since this generated both agreement about some aspects of studying and also brought out some contrasting experiences. One area of discussion that was unanticipated focused on how the GCSE examinations would be different from taking internal school examinations. Hence it seemed important to include this topic area in the interview guide used for the final study. Also important, although the pupils were in Year 10, was their interest in their

educational experiences after they had completed their GCSEs. This topic area, too, was included in the revised interview guide (see appendix 9).

3.4 The main study

3.4.1 The sample

1074 pupils from eight outer London schools participated in the research. The schools chosen were selected to provide a balanced sample in terms of gender, type of school and a range of ability (see Tables 8 and 9). Four schools were single sex, of which two were for boys only and two for girls only. One girls' school and one boys' school had competitive entrance requirements while the remaining two schools were non-selective. The four other schools were co-educational but an attempt was made to attain a range of ability levels among the pupils. One school had a competitive entrance examination while the others were non-selective.

Table 8: Breakdown of sample schools – pupils participating in Year 10

School	Entry	Sex	N – boys	N – girls	N – total
1	Selective	Girls	-	65	65
2	Non-selective	Boys	138	-	138
3	Non-selective	Both	80	62	142
4	Selective	Boys	105	-	105
5	Selective	Both	84	29	113
6	Non-selective	Girls	-	122	122
7	Non-selective	Both	26	52	78
8	Non-selective	Both	75	54	129
	Total		508	377	892

While the sample had been chosen in an attempt to gain an equal balance of male and female students, it can only be assumed that the larger number of boys reflects the school population at that time. This gender imbalance would not affect the research

since the sample size was sufficiently large to accommodate it (Cohen and Manion, 1998).

Table 9: Breakdown of sample schools – pupils participating in Year 11

School	Entry	Sex	N – boys	N - girls	N – total
1	Selective	Girls	-	68	68
2	Non-selective	Boys	127	-	127
3	Non-selective	Both	80	71	151
4	Selective	Boys	80	-	80
5	Selective	Both	78	28	106
6	Non-selective	Girls	-	124	124
7	Non-selective	Both	25	45	70
8	Non-selective	Both	55	47	102
	Total		445	383	828

All schools had received satisfactory inspection reports prior to the research. A brief overview of each school is provided below: these are derived from inspection reports.

School 1 was an independent 11-18 girls' school with 800 pupils of whom 160 were in the sixth form. Pupils were admitted from a wide catchment area and although ethnic minorities were represented, the majority of pupils were white. Students' attainment on entry to the school was well above the national average. Authorised absence was well below the national average.

School 2 was a voluntary aided non-selective 11-18 boys' school with over 1100 students. Pupils were admitted from a wide geographical area and from a range of socio-economic backgrounds. 30% of pupils were from ethnic minority backgrounds and the proportion of pupils with English as an additional language was high. The number of pupils receiving free school meals was in line with the national average and

pupils' attainment on entry to the school was normally above average. Levels of attendance were above the national average.

School 3 was a co-educational school for pupils aged 11-18, although the sixth form centre only opened in September 2002. The school had approximately 1000 pupils and served a local catchment area. Although ethnic minorities were represented, the majority of pupils were white. Pupils entered the school with levels of attainment slightly below the national average. The percentage of pupils known to be eligible for free school meals was broadly in line with the national average. Attendance was above the national average.

School 4 was an 11-18 boys' grammar school with 700 pupils of whom 200 were in the sixth form. Pupils were admitted from a wide catchment area. Approximately 25% of the pupils had ethnic minority backgrounds and the percentage of pupils for whom English is an additional language was high, although most of these students were competent English speakers. Students' attainment on entry to the school was well above average. The percentage of pupils known to be eligible for free school meals was below average for grammar schools. Authorised absence was well below the national average.

School 5 was an independent 10-18 co-educational school with approximately 850 pupils of whom 150 were in the sixth form. Pupils were admitted from a wide geographical area and although ethnic minorities were represented, the majority of pupils were white. Pupils' attainment on entry to the school was well above average. Authorised absence was well below the national average.

School 6 was a modern non-selective 11-18 girls' school that admitted boys into the sixth form. The school had over 1100 pupils and was oversubscribed. The catchment area for the school comprised a number of wards with a range of backgrounds. The percentage of pupils from ethnic minority backgrounds was above the national average: 20% of pupils had English as an additional language. Attendance matched the national average and pupils' attainment on entry to the school was slightly above the national average. The percentage of pupils known to be eligible for free school meals was below the national average.

School 7 was a co-educational comprehensive school for approximately 1000 pupils aged 11-16. The school served a predominantly local catchment area and although ethnic minorities were represented, the majority of pupils were white. Pupils entered the school with levels of attainment below average. Levels of attendance were below the national average. The percentage of pupils known to be eligible for free school meals (16%) was slightly above the national average.

School 8 was a co-educational comprehensive school for pupils aged 11-16. The school had just over 1000 pupils and while most pupils were from the local catchment area, almost one third came from a neighbouring borough. Just over 4% of pupils were from ethnic minority backgrounds. Levels of attendance were below the national average. Pupils entered the school with levels of attainment below average. The percentage of pupils known to be eligible for free school meals (15%) was broadly in line with the national average.

The twenty focus group interviews, each comprising four participants, were planned to ensure that pupils were drawn from different schools and represented differing ability

levels and gender. Ten interviews were carried out with groups of pupils during Year 10 of their GCSE and a further ten interviews when they were in Year 11. Five interviews in each year were carried out with boys and five with girls. In the co-educational schools pupils were interviewed in single sex groups: one group of boys and one group of girls in each year. The interviews were held in a range of schools (see Table 10).

Table 10: Breakdown of the number of focus group interviews according to school

School	Entry	Gender	Year 10	Year 11	Total
1	Selective	Girls	1	1	2
2	Non-selective	Boys	2	2	4
3	Non-selective	Both	2	2	4
4	Selective	Boys	1	1	2
6	Non-selective	Girls	2	2	4
7	Non-selective	Both	2	2	4
Total number of focus groups			10	10	20

At each school the Head of Year was responsible for selecting the group(s) of four pupils to take part in each focus group. It was requested that pupils were in the same friendship groups and that they represented different levels of ability within the context of the school. No other controls operated in relation to the particular students selected. This was similar to the procedure adopted by Warrington and Younger (1999).

3.4.2 The materials

The research instrument

The research instrument, as developed and piloted for this research, comprised two parts. The first was a series of seventy-one questions to provide an assessment of pupils' perceptions of their studying. Following a successful pilot, no changes were

warranted to this part of the research instrument. The second part of the questionnaire comprised questions to elicit responses on factors that might mediate the impact of ways of studying and to provide background information about the pupil. As previously discussed, following the pilot a few additions were made to this section of the questionnaire (see 3.2.3).

The interview guide

Following the pilot, two more topic areas were introduced: these to explore pupils' perceptions of the differences between internal school examinations and the actual GCSEs and their education after GCSEs. As previously discussed, no other changes were deemed necessary (see 3.3.3). The guide, though, was reviewed for use with the Year 11 students since it seemed important to take account of their longer experience of studying for GCSEs, to enable some reflection on whether they were aware of adapting or changing their perception of their studying as they had progressed through the course and to consider whether the concerns voiced during Year 10 remained.

As with the Year 10 interview guide, a simple opening question was asked at the beginning to enable all students to talk with ease. Rather than ask whether they were enjoying their GCSEs, the question this time referred to how their studying for GCSEs was progressing.

The key questions, that would occupy the largest part of the interview, sought to gain further understanding of the concerns previously expressed in Year 10 in relation to the demands of coursework and examinations; subject specific differences; levels of teacher support; time management and pressure to succeed. In addition, questions were devised to enable pupils to discuss their experience of school mock examinations and their final

revision preparation given the proximity of the actual GCSE examinations. The remaining key questions sought to explore differences between Year 10 and 11 and whether, in hindsight, there were things that they may have done differently.
In a similar manner to the Year 10 interview guide, a series of probes were developed for some of the questions. Thus, for instance, when discussing their awareness of change between Year 10 and 11 the probes included: time spent on work; planning work; organising work; greater awareness of revision strategies; future educational plans and whether this impacted on their studying.

As with the Year 10 interview guide it was important to include end questions. The first asked students to reflect on the most critical aspects of studying for GCSE. As before, the intention was that the responses from this question would help to assign weight to the key issues that had arisen during the discussion. The final question, again used as an 'insurance question' (Krueger, 1998), asked if there were any other issues arising in relation to their experiences of studying for GCSE. The purpose of this question was to ensure that critical aspects of perceptions of studying for GCSE had not been overlooked. The interview guide is presented in appendix 10.

3.4.3 The procedure

Data were collected from four sources:

- The research instrument to explore perceptions of studying and to provide background information about the participants.
- The focus group interviews to explore perceptions of studying.
- Key Stage 3 SATs results for English, Mathematics and Science were requested for all participants as evidence of prior knowledge. These had been taken by the pupils when in Year 9 (2001).

- GCSE results for all pupils were gathered in August 2003. All participants were given a total GCSE score that reflected their achievement in all GCSE subjects. The standard convention of scoring, as used by the DfES, was adopted whereby A* = 8 points, A = 7 points, ... G = 1.

The research was carried out in two main phases. In Phase 1, Year 10 pupils completed the questionnaire to explore perceptions of studying. 10 focus group interviews were also carried out with Year 10 pupils. In Phase 2, the pupils, who were now in Year 11 were asked to complete the questionnaire to explore perceptions of studying once more. 10 focus group interviews were carried out with Year 11 pupils from the same schools as before. The procedures of administering the research instrument and carrying out the interviews were identical in each phase.

Phase 1 and 2

Administering the research instrument

The procedure for administering the questionnaire was identical to that previously described for the pilot study (see 3.2.1). One small change was necessitated to the briefing statement read out by form tutors at the onset of the procedure for Year 11 pupils. It was important to acknowledge that some Year 11 pupils had completed the questionnaire before when they were in Year 10 (see appendix 11). All pupils present on the days of the questionnaire participated in the study and no attempt was made to influence the sample.

Focus group interviews

The focus group interviews were carried out in exactly the same way as for the pilot with regard to the quiet setting, the layout of the room and the assurance of confidentiality (see 3.3.2).

The interview guides were used as the basis for the interviews (see appendices 9 and 10) and ensured that the same topics were covered in each discussion. The order of the key questions varied, though, in relation to how each group discussion progressed. Once the interview was over all participants were given the opportunity for a debrief and to ask any further questions that they might have.

3.4.4 Ethical considerations

At all stages of the research it was important to consider ethical issues in asking pupils to complete the questionnaire and participate in the focus groups. With regard to the questionnaire, all pupils were briefed by the researcher about the focus of the research, either in year group meetings or in tutor groups. They were informed that all answers were confidential and only the collated responses would be used for the research. It was made clear that pupils could withdraw their consent at any time either in writing or orally by means of a statement prepared by the researcher to be read out prior to completion of the questionnaire (see appendix 11). In considering possible stress, all pupils completed the questionnaire in a familiar environment with their current form tutor. The privacy of all participants was not infringed since all information was treated as confidential. Information about the research was conveyed to parents via the schools' newsletters and they were informed that they could withdraw their consent either in writing or orally.

In each school the head teacher was introduced to the researcher, informed about the nature of the research and told that all responses would be confidential. The head teachers all gave permission for the research to take place and seemed genuinely interested. The researcher held discussions with all heads of year and briefed all form tutors who would be assisting in the administration of the questionnaire. It was hoped that if all staff were aware of the aims of the research then they would not influence pupils in any way that might prejudice these aims. By seeking the involvement of the form tutors it was also hoped that they would not find the administration of the test an unnecessary burden (Robson, 1998). On a practical level the involvement of the head of year and the form tutors was important since they would be required to assist with the completion of the questionnaires twice. At all times the head teachers and form tutors were informed that the findings of the research, with regard to individual pupils, were confidential.

Given that pupils were completing the questionnaire twice, it was important that they provided their name on their response so that their questionnaire data could be matched. In addition, names were necessary to match data for individual pupils to their SATs results and GCSE results. Once the data were collected and matched all names were deleted from the database.

With regard to the pupils participating in the focus group interviews, parental and pupil consent was sought and, as with the questionnaire, parents and pupils were informed that they could withdraw their consent to participate in the interview at any time. A number of pupils took part in the interviews in both Year 10 and 11: on each occasion parental and pupil consent was acquired. As previously described (see 3.3.2) pupils

were assured of confidentiality and the quiet setting was chosen to reduce any possible anxiety.

3.5 Analysis of the data

The data from all Year 10 and 11 pupils who completed the questionnaire were entered into SPSS version 11.5 for analysis. As with the pilot, it was necessary to reverse the score of the negative statements so that all questions were scored in the same direction. In total 1074 pupils completed the questionnaire. Of these 646 (60.1%) took part twice, in both Year 10 and 11; 428 took part once: 246 in Year 10 only and 182 in Year 11 only. The total number of Year 10 participants was 892 and the total number of Year 11 participants was 828. The first stage in the statistical analysis was to explore descriptive statistics for all the Year 10 data and then all the Year 11 data to gain an overview of perceptions of studying as this related to the different elements of the GCSE. This is presented in chapter 4. In addition, multiple regression was utilised to explore the relationship between perceptions of studying and attainment and multivariate analysis to consider differences in perceptions of studying between different groups. Repeated-measures analysis was then carried out for those participants who took part on both occasions to enable consideration of whether perceptions of studying change during the two-year GCSE course (see chapter 5).

Factor analysis was carried out on the Year 10 and Year 11 data separately, since this enabled consideration of the underlying characteristics of perceptions of studying for GCSE to be explored (see chapter 6). Finally, the technique of cluster analysis was used, as in Pintrich's study (1989, see 1.2.8), to classify students according to their study typology (see chapter 7).

The twenty focus group interviews were transcribed and then analysed according to the seven-stage process developed by Cooper and McIntyre (1993). (For reference the transcription of one of the interviews is provided in appendix 12.) This iterative process of categorisation seeks to continually refine and test the description as it enfolds. Tesch (1990) described it as empirical phenomenology: empirical since the theorising is based on the data collected and phenomenological since it treats the participants' accounts and thoughts about their own experiences as data. The process involved:

1. Reading a random sample of scripts;
2. Identifying points of similarity and difference among these transcripts in relation to the research questions;
3. Generating theories, on the basis of two, describing emergent answers to the research questions;
4. Testing theories against a new set of transcripts;
5. Testing new theories against transcripts that have already been dealt with;
6. Carrying all existing theories forward to new transcripts;
7. Repeating the above process until all data have been examined and all theories tested against all data (Cooper and McIntyre, 1993).

Following this, all interviews were reanalysed in relation to the main themes that had arisen and a numeric count made where each group had referred to each theme. The decision to record group responses rather than individual pupil responses was deliberate and arose from the research method chosen. The discursive nature of the focus group interviews meant that all participants were aware of the issues raised during the course of the interview and hence, as individuals, there would be no reason to reiterate a point. Calculating the number of individual responses according to key themes would have misrepresented the data gathered. These findings are presented in chapter 8.

CHAPTER FOUR: PERCEPTIONS OF STUDYING FOR GCSE IN YEARS 10 AND 11

4.1 Introduction

This chapter begins with a presentation of the descriptive statistics of the rating scale responses in relation to perceptions of coursework, examinations, homework, study and research: this to afford greater understanding of pupils' experiences of studying for GCSE in Year 10 and Year 11. Next, consideration is given to the overall responses according to content area and the relationship between the content areas. Descriptive statistics are then presented for contextual factors that may relate to perceptions of studying for GCSE, including the perceived importance of GCSEs, anticipated GCSE results, aspirations, use of resources and support. Finally, attention is turned to the relationship between perceptions of studying for GCSE and attainment.

4.2 Perceptions of doing coursework

Year 10 perceptions of doing coursework

In presenting the descriptive statistics it is important to recall that students' responded to a five-point rating scale whereby 1 = strongly disagree and 5 = strongly agree. Interpretation of the mean scores is in relation to this scale.

Most notable in relation to perceptions of doing coursework was the high importance that pupils placed on having a computer at home (see Table 11). Positive strategies for coping with coursework were apparent, as indicated by the high mean, with regard to the benefits of checking coursework drafts with care and putting more effort into coursework than other work.

Table 11: Percentage Year 10 responses, mean and standard deviation for perceptions of coursework

(N = 892)	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Mean	SD
It's really important to have use of a computer at home for coursework	44% (390)	45% (399)	2% (16)	9% (79)	1% (8)	4.22	0.919
I find coursework gives you the opportunity to explore your own ideas	16% (139)	47% (419)	7% (62)	24% (216)	6% (56)	3.41	1.19
I often spend long hours doing coursework because I am anxious for it to be right (R)	19% (173)	42% (376)	5% (48)	27% (244)	6% (51)	2.58	1.234
I try to break my coursework down into small tasks rather than seeing it as a massive project	16% (141)	41% (365)	5% (43)	29% (260)	9% (83)	3.25	1.283
When given lesson time for coursework I prefer to chat with my friends and then work at home (R)	17% (152)	36% (317)	4% (38)	32% (285)	11% (100)	2.85	1.336
I like doing coursework because you can do it in your own time	14% (128)	39% (347)	4% (34)	29% (263)	13% (120)	3.11	1.336
I find that coursework tends to pile up (R)	26% (233)	41% (365)	4% (34)	24% (212)	5% (48)	2.41	1.251
I put more effort into coursework than other work	36% (319)	40% (353)	4% (36)	17% (156)	3% (28)	3.87	1.169
I make sure that I check all my coursework drafts for any mistakes to see if I can improve	27% (237)	49% (441)	3% (27)	18% (164)	3% (23)	3.79	1.105
I usually have to work really hard at the end to complete coursework (R)	27% (243)	37% (333)	5% (46)	25% (222)	5% (48)	2.44	1.27
I find it helpful to discuss coursework with my friends	23% (206)	51% (457)	3% (24)	18% (158)	5% (47)	3.69	1.161
I get anxious about coursework (R)	20% (179)	40% (356)	4% (34)	29% (258)	7% (65)	2.63	1.285
I feel that you get less help from teachers for coursework (R)	18% (162)	31% (275)	6% (52)	34% (299)	12% (104)	2.9	1.352
It's difficult to manage the time required for coursework because there is no limit to what could be done (R)	18% (161)	44% (396)	7% (64)	24% (213)	7% (58)	2.56	1.215
I'm not always sure about what is required for coursework (R)	16% (139)	45% (400)	4% (33)	29% (256)	7% (64)	2.67	1.24
I tend to do several drafts of coursework before submitting the final piece of work	15% (131)	33% (297)	4% (39)	36% (324)	11% (101)	3.04	1.318

Note: figures in brackets are actual number of responses; percentages have been rounded to the nearest whole number and R indicates that the scores were reversed.

Many pupils found it helpful to discuss coursework with friends and it seemed that, for some pupils, coursework was valued for the freedom it offered in exploring individual ideas. There was an indication, as evidenced by the low mean scores, that pupils were concerned with the volume of coursework, the requirements for coursework, that they were anxious about their coursework and that some had to work very hard at the end (see Table 11).

Year 11 perceptions of doing coursework

Year 11 pupils placed a high level of importance on having a computer at home for coursework (see Table 12). Positive strategies for coping with coursework were apparent in the importance placed on the benefits of checking coursework drafts with care; students also indicated putting more effort into coursework than other work. For many, it seemed that coursework was valued for the freedom it offered in exploring individual ideas, although the mean valued reported here was lower than that found among the Year 10 students. It appeared that although in the final stages of their GCSE course, Year 11 pupils were concerned with the volume of coursework, the requirements for coursework, were anxious about their coursework and some had to work very hard at the end to complete coursework (see Table 12).

Table 12: Percentage Year 11 responses, mean and standard deviation for perceptions of coursework

(N = 826)	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Mean	SD
It's really important to have use of a computer at home for coursework	54% (447)	40% (329)	0% (4)	5% (41)	1% (5)	4.42	0.79
I find coursework gives you the opportunity to explore your own ideas	15% (122)	46% (381)	5% (45)	29% (238)	5% (40)	3.37	1.182
I often spend long hours doing coursework because I am anxious for it to be right (R)	19% (159)	45% (370)	5% (38)	26% (218)	5% (41)	2.53	1.209
I try to break my coursework down into small tasks rather than seeing it as a massive project	13% (106)	41% (341)	4% (35)	33% (270)	9% (74)	3.16	1.26
When given lesson time for coursework I prefer to chat with my friends and then work at home (R)	16% (129)	38% (317)	5% (41)	31% (255)	10% (84)	2.82	1.301
I like doing coursework because you can do it in your own time	15% (120)	38% (311)	3% (21)	31% (260)	14% (114)	3.08	1.349
I find that coursework tends to pile up (R)	31% (254)	44% (364)	1% (12)	19% (160)	4% (36)	2.23	1.2
I put more effort into coursework than other work	34% (283)	44% (363)	3% (24)	16% (131)	3% (25)	3.91	1.127
I make sure that I check all my coursework drafts for any mistakes to see if I can improve	21% (175)	51% (421)	3% (27)	20% (169)	4% (34)	3.65	1.145
I usually have to work really hard at the end to complete coursework (R)	30% (249)	42% (348)	3% (27)	20% (167)	4% (35)	2.26	1.207
I find it helpful to discuss coursework with my friends	22% (178)	53% (436)	2% (18)	19% (154)	5% (40)	3.68	1.147
I get anxious about coursework (R)	20% (162)	41% (341)	3% (26)	29% (243)	7% (54)	2.62	1.269
I feel that you get less help from teachers for coursework (R)	13% (107)	31% (260)	5% (40)	39% (325)	11% (94)	3.05	1.297
It's difficult to manage the time required for coursework because there is no limit to what could be done (R)	18% (152)	44% (362)	6% (46)	28% (229)	4% (37)	2.56	1.2
I'm not always sure about what is required for coursework (R)	17% (139)	42% (344)	5% (40)	31% (256)	6% (47)	2.67	1.233
I tend to do several drafts of coursework before submitting the final piece of work	13% (107)	40% (327)	4% (35)	34% (281)	9% (76)	3.13	1.268

Note: figures in brackets are actual number of responses; percentages have been rounded to the nearest whole number and R indicates that the scores were reversed.

4.3 Perceptions of studying for examinations

Year 10 perceptions of studying for examinations

The high mean values returned with reference to testing oneself when revising, checking for understanding and varying the amount of revision according to the perceived difficulty or ease of the subject indicated that some positive strategies were being employed by pupils (see Table 13). Revision guides were seen as a useful resource. Lower mean values appeared to reflect pupils' anxiety over how well they might do and a sense of being overwhelmed with the volume of material to revise.

Table 13: Percentage Year 10 responses, mean and standard deviation for perceptions of examinations

	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Mean	SD
I prefer exams because you know what you've got to learn	8% (68)	37% (332)	8% (69)	36% (325)	11% (98)	2.94	1.216
I usually plan my revision weeks in advance	7% (65)	25% (219)	7% (63)	43% (388)	18% (157)	2.6	1.233
I find websites (e.g. BBC Bitesize) helpful when revising for exams	13% (120)	31% (274)	14% (121)	31% (277)	11% (100)	3.04	1.267
I go through lots of practice questions and past papers to help prepare for the exams	12% (111)	41% (364)	6% (54)	31% (278)	10% (85)	3.15	1.256
I find it helpful to revise with my friends	15% (134)	34% (307)	7% (58)	27% (240)	17% (153)	3.03	1.379
Most of the exams are based on the work that I have done during the GCSE course so I don't feel that there is much to revise	5% (44)	26% (232)	6% (53)	44% (395)	19% (168)	2.54	1.201
When revising I test myself to check that I understand everything	20% (176)	49% (439)	4% (33)	22% (192)	6% (52)	3.55	1.193
I find it hard to memorise things (R)	19% (168)	36% (323)	4% (32)	29% (263)	12% (106)	2.79	1.358
I tend to revise in short bursts because I concentrate better that way	18% (164)	46% (408)	6% (54)	24% (213)	6% (53)	3.47	1.205
I tend to revise more for subjects that I find difficult	26% (233)	41% (368)	3% (28)	23% (203)	7% (60)	3.57	1.276
I get anxious about exams because I don't feel that I do my best (R)	30% (272)	39% (347)	5% (42)	20% (179)	6% (52)	2.32	1.257
I vary the amount of revision I do depending on whether I find the subject easy or difficult	23% (207)	51% (453)	5% (46)	17% (149)	4% (37)	3.72	1.118

I feel that I have to spend hours rote-learning facts for a lot of the exams (R)	14% (123)	36% (320)	13% (112)	31% (273)	7% (64)	2.82	1.213
I use different ways of revising	12% (108)	41% (364)	6% (55)	33% (291)	8% (74)	3.16	1.236
I don't feel confident in assessing whether I know something or not (R)	9% (80)	41% (364)	11% (97)	34% (299)	6% (52)	2.86	1.148
When revising I usually test myself to see if I remember things	21% (186)	50% (444)	3% (31)	21% (189)	5% (42)	3.61	1.167
I find it difficult to make notes for revision (R)	14% (125)	33% (292)	2% (22)	37% (344)	13% (119)	3.03	1.34
If I know I don't understand something then I avoid those questions (R)	11% (102)	34% (303)	6% (55)	37% (326)	12% (106)	3.03	1.28
I usually try to remember lots of facts for exams rather than gaining an overview (R)	12% (108)	48% (425)	10% (89)	26% (233)	4% (37)	2.63	1.118
Once the exam is over I find that I remember very little (R)	18% (164)	38% (342)	6% (57)	30% (272)	6% (57)	2.68	1.257
I usually use revision guides to help me prepare for exams	26% (230)	41% (368)	5% (41)	23% (203)	6% (50)	3.59	1.245
I feel that there is so much to learn that I find it difficult to know what to revise (R)	25% (223)	47% (421)	4% (36)	20% (179)	4% (33)	2.3	1.156

Note: figures in brackets are actual number of responses; percentages have been rounded to the nearest whole number and R indicates that the scores were reversed.

Year 11 perceptions of studying for examinations

Year 11 pupils showed evidence of some positive strategies for the GCSE examinations as evidenced by the high mean values returned with reference to testing oneself when revising, checking for understanding and varying the amount of revision according to the perceived difficulty or ease of the subject (see Table 14). As with the Year 10 cohort, revision guides were seen as a useful resource although the mean was higher among the Year 11 pupils. Lower mean values appeared to reflect pupils' anxiety over how well they might do and a sense of being overwhelmed with the volume of material to revise.

Table 14: Percentage Year 11 responses, mean and standard deviation for perceptions of examinations

	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Mean	SD
I prefer exams because you know what you've got to learn	8% (70)	39% (323)	8% (70)	34% (277)	10% (86)	3.02	1.218
I usually plan my revision weeks in advance	7% (54)	29% (242)	6% (51)	44% (360)	14% (119)	2.7	1.216
I find websites (e.g. BBC Bitesize) helpful when revising for exams	18% (148)	42% (348)	7% (58)	22% (181)	11% (91)	3.34	1.298
I go through lots of practice questions and past papers to help prepare for the exams	16% (131)	52% (429)	5% (44)	22% (183)	5% (39)	3.52	1.138
I find it helpful to revise with my friends	10% (82)	40% (330)	6% (48)	30% (251)	14% (115)	3.02	1.288
Most of the exams are based on the work that I have done during the GCSE course so I don't feel that there is much to revise	4% (32)	24% (195)	6% (51)	46% (379)	20% (169)	2.45	1.167
When revising I test myself to check that I understand everything	16% (136)	56% (466)	4% (29)	20% (166)	4% (29)	3.62	1.086
I find it hard to memorise things (R)	18% (146)	36% (295)	4% (29)	31% (256)	12% (100)	2.84	1.355
I tend to revise in short bursts because I concentrate better that way	16% (131)	47% (390)	6% (48)	25% (210)	6% (47)	3.42	1.189
I tend to revise more for subjects that I find difficult	23% (187)	45% (371)	5% (40)	23% (191)	4% (37)	3.58	1.195
I get anxious about exams because I don't feel that I do my best (R)	27% (220)	39% (323)	4% (36)	25% (209)	5% (38)	2.42	1.249
I vary the amount of revision I do depending on whether I find the subject easy or difficult	24% (196)	50% (417)	4% (33)	19% (153)	3% (27)	3.73	1.114
I feel that I have to spend hours rote-learning facts for a lot of the exams (R)	12% (99)	42% (348)	10% (79)	31% (254)	6% (46)	2.76	1.172
I use different ways of revising	11% (94)	42% (349)	5% (40)	35% (292)	6% (51)	3.17	1.204
I don't feel confident in assessing whether I know something or not (R)	8% (63)	40% (327)	9% (76)	39% (326)	4% (34)	2.93	1.121
When revising I usually test myself to see if I remember things	18% (150)	53% (440)	2% (19)	22% (180)	4% (37)	3.59	1.145
I find it difficult to make notes for revision (R)	13% (104)	33% (275)	3% (27)	38% (313)	13% (107)	3.05	1.316
If I know I don't understand something then I avoid those questions (R)	10% (82)	32% (265)	5% (43)	42% (349)	11% (87)	3.11	1.245
I usually try to remember lots of facts for exams rather than gaining an overview (R)	13% (107)	46% (379)	9% (72)	28% (234)	4% (34)	2.65	1.141

Once the exam is over I find that I remember very little (R)	19% (160)	41% (338)	6% (52)	30% (244)	4% (32)	2.58	1.207
I usually use revision guides to help me prepare for exams	35% (288)	43% (357)	3% (23)	16% (134)	3% (24)	3.91	1.131
I feel that there is so much to learn that I find it difficult to know what to revise (R)	25% (203)	44% (363)	3% (26)	25% (205)	4% (29)	2.39	1.199

Note: figures in brackets are actual number of responses; percentages have been rounded to the nearest whole number and R indicates that the scores were reversed.

4.4 Perceptions of doing homework

Years 10 perceptions of doing homework

The range of the mean question scores across the homework content area was narrower than that for other content areas. Year 10 students seemed to have some positive strategies in place with regard to attempting to plan their homework and were less likely to do their homework in school (see Table 15). It appeared, though, that the variation in the amount of homework set made it difficult to plan homework and students also seemed to have to work long hours to complete their homework on some occasions.

Table 15: Percentage Year 10 responses, mean and standard deviation for perceptions of homework

	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Mean	SD
I try to plan my homework so that it is manageable	10% (86)	43% (388)	6% (51)	31% (278)	10% (89)	3.12	1.233
I usually do my homework at school	4% (36)	20% (177)	6% (55)	43% (384)	27% (240)	2.31	1.18
If I don't feel that homework is important then I do it in the shortest time possible (R)	12% (110)	35% (313)	5% (47)	34% (303)	13% (119)	3.01	1.311
I usually take regular breaks when doing my homework	20% (176)	46% (410)	3% (25)	23% (208)	8% (73)	3.46	1.266
I find it difficult to concentrate when working at home (R)	10% (88)	23% (202)	4% (32)	39% (345)	25% (225)	3.47	1.342
I usually leave my homework until it absolutely has to be done (R)	16% (139)	32% (282)	4% (38)	35% (308)	14% (125)	3	1.359
Sometimes I have to work really long hours to finish my homework (R)	26% (231)	41% (364)	4% (32)	22% (195)	8% (70)	2.45	1.294
The amount of homework varies so much that it is difficult to plan my work (R)	21% (187)	49% (433)	4% (36)	22% (197)	4% (39)	2.4	1.169
I always plan what homework I have to complete by the next day	18% (159)	42% (375)	4% (40)	27% (240)	9% (78)	3.33	1.282

Note: figures in brackets are actual number of responses; percentages have been rounded to the nearest whole number and R indicates that the scores were reversed.

Year 11 perceptions of doing homework

In line with the findings from the Year 10 cohort, the Year 11 students seemed to have some positive strategies in place with regard to attempting to plan their homework and taking regular breaks when completing homework (see Table 16). The variation in the amount of homework set made it difficult to plan homework in many cases and students also seemed, on some occasions, to have to work long hours to complete their homework.

Table 16: Percentage Year 11 responses, mean and standard deviation for perceptions of homework

	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Mean	SD
I try to plan my homework so that it is manageable	8% (66)	45% (370)	6% (46)	33% (275)	8% (69)	3.11	1.194
I usually do my homework at school	6% (46)	25% (203)	6% (50)	39% (323)	25% (204)	2.47	1.253
If I don't feel that homework is important then I do it in the shortest time possible (R)	14% (114)	37% (302)	5% (42)	35% (288)	10% (80)	2.9	1.283
I usually take regular breaks when doing my homework	17% (144)	50% (410)	2% (18)	26% (211)	5% (43)	3.49	1.193
I find it difficult to concentrate when working at home (R)	10% (82)	22% (185)	4% (29)	41% (340)	23% (190)	3.45	1.324
I usually leave my homework until it absolutely has to be done (R)	14% (119)	36% (296)	4% (32)	34% (279)	12% (100)	2.93	1.325
Sometimes I have to work really long hours to finish my homework (R)	23% (192)	43% (358)	3% (21)	24% (201)	7% (54)	2.48	1.263
The amount of homework varies so much that it is difficult to plan my work (R)	19% (158)	49% (408)	4% (36)	24% (196)	3% (28)	2.43	1.143
I always plan what homework I have to complete by the next day	15% (127)	42% (351)	3% (25)	31% (252)	9% (71)	3.26	1.275

Note: figures in brackets are actual number of responses; percentages have been rounded to the nearest whole number and R indicates that the scores were reversed.

4.5 Perceptions of study

Year 10 perceptions of study

With regard to experiences of studying, Year 10 pupils appeared to have a high level of metacognitive awareness with regard to the need to re-read material for understanding and reported being aware when they failed to understand (see Table 17). The feedback from teachers was valued and students indicated that they recognised the importance of effort in improving understanding. Less positive were concerns about whether Year 10 pupils could assess the quality of their work, although it appeared that students were aware of what was required to obtain a good mark. It seemed that time was already an issue, with some students finding it difficult to find time to relax each evening and having to cancel seeing friends due to too much work.

Table 17: Percentage Year 10 responses, mean and standard deviation for perceptions of study

	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Mean	SD
I find it helpful to work with music playing because it helps me to concentrate	23% (208)	39% (352)	6% (51)	20% (174)	12% (107)	3.43	1.35
I'm unsure whether my work is any good or not (R)	8% (70)	43% (385)	9% (83)	31% (277)	9% (77)	2.89	1.18
I often work in front of the TV because it prevents me from getting bored (R)	9% (84)	21% (188)	4% (40)	35% (308)	30% (272)	3.56	1.358
I usually make sure that I have everything I need before starting work	22% (200)	44% (392)	3% (29)	26% (235)	4% (36)	3.54	1.211
I often re-read things if I don't understand the first time	46% (412)	48% (427)	1% (7)	4% (38)	1% (8)	4.34	0.778
I spend time being critical of my own work since it helps me to produce better work	13% (112)	42% (378)	8% (69)	33% (293)	4% (40)	3.26	1.17
Wherever I'm working I make sure that I feel comfortable so that I can focus on what I have to do	32% (283)	52% (468)	3% (24)	11% (99)	2% (18)	4.01	0.985
I find it difficult to organise my work so that I have some time to relax each evening (R)	20% (177)	36% (321)	5% (43)	31% (277)	8% (74)	2.72	1.311
If my work isn't going well then I find it helpful to change to another task for a while and then go back	23% (207)	47% (420)	5% (49)	18% (160)	6% (56)	3.63	1.198
I know what I need to do to get a good mark	22% (192)	44% (392)	5% (42)	23% (208)	7% (58)	3.51	1.24
I find it hard to accept criticism of my work (R)	10% (86)	25% (219)	6% (55)	46% (406)	14% (126)	3.3	1.25
I make use of the feedback from teachers since it helps me to improve	26% (234)	52% (467)	4% (35)	14% (126)	3% (30)	3.84	1.07
If I am unsure about something then I make an effort to improve my understanding	17% (152)	58% (519)	5% (41)	18% (160)	2% (20)	3.7	1.023
Often I have to cancel seeing my friends or going out because I have too much work to do (R)	18% (158)	29% (261)	5% (49)	31% (280)	16% (144)	2.99	1.401
I am aware when I don't understand things	30% (272)	55% (494)	2% (20)	9% (83)	3% (23)	4.02	0.966

Note: figures in brackets are actual number of responses; percentages have been rounded to the nearest whole number and R indicates that the scores were reversed.

Year 11 perceptions of study

Similar to Year 10 pupils, Year 11 pupils reported being aware when they failed to understand and appeared to have a high level of metacognitive awareness with regard to the need to re-read material for understanding (see Table 18). They also valued the importance of working in a comfortable environment so that they could focus on their work effectively. The feedback from teachers was valued and students indicated that they recognised the importance of effort in improving understanding. In line with the findings from the Year 10 cohort, less positive were concerns about whether, even in the final stages of their GCSE, pupils could assess the quality of their work, although it appeared that students were aware of what was required to obtain a good mark. It seemed that time continued to be an issue with some students having to cancel seeing friends due to too much work and finding it difficult to find time to relax each evening.

Table 18: Percentage Year 11 responses, mean and standard deviation for perceptions of study

	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Mean	SD
I find it helpful to work with music playing because it helps me to concentrate	21% (176)	43% (354)	5% (45)	20% (163)	11% (88)	3.44	1.307
I'm unsure whether my work is any good or not (R)	8% (67)	42% (343)	7% (59)	35% (291)	8% (66)	2.93	1.187
I often work in front of the TV because it prevents me from getting bored (R)	7% (56)	21% (171)	3% (25)	37% (309)	32% (265)	3.67	1.298
I usually make sure that I have everything I need before starting work	19% (155)	50% (416)	3% (24)	23% (193)	5% (38)	3.55	1.169
I often re-read things if I don't understand the first time	42% (349)	52% (427)	1% (6)	4% (32)	1% (12)	4.29	0.794
I spend time being critical of my own work since it helps me to produce better work	10% (85)	48% (393)	5% (45)	32% (266)	4% (37)	3.27	1.148
Wherever I'm working I make sure that I feel comfortable so that I can focus on what I have to do	28% (235)	57% (471)	2% (16)	11% (90)	2% (14)	4	0.945

I find it difficult to organise my work so that I have some time to relax each evening (R)	17% (138)	39% (319)	4% (33)	34% (279)	7% (57)	2.76	1.269
If my work isn't going well then I find it helpful to change to another task for a while and then go back	16% (131)	55% (452)	4% (31)	21% (175)	4% (37)	3.56	1.121
I know what I need to do to get a good mark	19% (161)	49% (401)	3% (26)	23% (194)	5% (44)	3.53	1.196
I find it hard to accept criticism of my work (R)	8% (65)	25% (206)	6% (53)	47% (390)	14% (112)	3.34	1.211
I make use of the feedback from teachers since it helps me to improve	23% (191)	61% (504)	3% (22)	10% (84)	3% (25)	3.91	0.964
If I am unsure about something then I make an effort to improve my understanding	16% (134)	61% (503)	5% (43)	16% (134)	1% (12)	3.74	0.964
Often I have to cancel seeing my friends or going out because I have too much work to do (R)	17% (142)	36% (295)	5% (44)	29% (240)	13% (105)	2.84	1.35
I am aware when I don't understand things	27% (224)	60% (497)	2% (19)	10% (79)	1% (7)	4.03	0.868

Note: figures in brackets are actual number of responses; percentages have been rounded to the nearest whole number and R indicates that the scores were reversed.

4.6 Perceptions of research

Year 10 perceptions of research

In additional to valuing the use of computers for coursework, Year 10 pupils responded positively to the usefulness of the Internet for research; however, they also reported looking things up in books (see Table 19). Year 10 pupils reported a positive response to reading more in areas of interest and it appeared that they were aware of the need to ask for help when unsure. Some research techniques associated with the GCSE seemed to present difficulties to some students, as evidenced by the lower mean, such as the ability to summarise information and the possible anxiety associated with making lots of notes about a topic before feeling sufficiently confident to write an essay (see Table 19).

Table 19: Percentage Year 10 responses, mean and standard deviation for perceptions of research

	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Mean	SD
I find it useful to have Internet access for research	50% (443)	40% (360)	2% (21)	6% (54)	2% (14)	4.3	0.901
If I find my work difficult then I look things up in other books	18% (160)	49% (438)	5% (45)	22% (192)	6% (57)	3.51	1.193
I often go to the library for extra information	6% (53)	16% (141)	6% (53)	44% (393)	28% (252)	2.27	1.199
When I need information about a topic I usually rely on the books that I have at home (R)	14% (125)	41% (369)	5% (44)	32% (283)	8% (71)	2.78	1.251
I often read more about areas that interest me	32% (287)	48% (426)	3% (24)	14% (124)	3% (31)	3.91	1.101
I like gathering information from a range of sources and then forming my own opinion	14% (125)	42% (375)	7% (62)	31% (276)	6% (54)	3.27	1.209
I tend to write lots of notes about a topic before feeling confident enough to write an essay (R)	15% (132)	38% (337)	5% (41)	34% (303)	9% (79)	2.84	1.281
If I feel unsure about something then I ask for help from someone else	23% (205)	58% (516)	2% (21)	13% (120)	3% (30)	3.84	1.034
I find it difficult to summarise information (R)	16% (145)	34% (300)	5% (41)	35% (308)	11% (98)	2.9	1.328

Note: figures in brackets are actual number of responses; percentages have been rounded to the nearest whole number and R indicates that the scores were reversed.

Year 11 perceptions of research

As with the Year 10 cohort, pupils in Year 11 valued the usefulness of the Internet for research, reported looking things up in books but were less likely to use the library for extra information (see Table 20). They often read more about areas of interest and were aware of the need to ask for help when unsure. It appeared that even in Year 11 some research techniques associated with the GCSE continued to present difficulties to some students. As evidenced by the lower mean, these included the ability to summarise information and the possible anxiety associated with making lots of notes about a topic before feeling sufficiently confident to write an essay.

Table 20: Percentage Year 11 responses, mean and standard deviation for perceptions of research

	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Mean	SD
I find it useful to have Internet access for research	49% (404)	44% (361)	1% (11)	5% (41)	1% (9)	4.34	0.826
If I find my work difficult then I look things up in other books	16% (132)	52% (430)	5% (45)	23% (190)	4% (29)	3.54	1.114
I often go to the library for extra information	3% (27)	18% (149)	4% (33)	47% (389)	28% (228)	2.22	1.133
When I need information about a topic I usually rely on the books that I have at home (R)	12% (100)	43% (352)	4% (35)	34% (277)	8% (62)	2.82	1.231
I often read more about areas that interest me	29% (240)	52% (429)	3% (26)	13% (109)	3% (22)	3.92	1.041
I like gathering information from a range of sources and then forming my own opinion	10% (86)	45% (370)	7% (54)	33% (273)	5% (43)	3.22	1.164
I tend to write lots of notes about a topic before feeling confident enough to write an essay (R)	14% (114)	41% (340)	4% (33)	35% (292)	6% (47)	2.78	1.224
If I feel unsure about something then I ask for help from someone else	23% (188)	59% (486)	3% (21)	13% (110)	3% (21)	3.86	0.998
I find it difficult to summarise information (R)	13% (104)	36% (298)	5% (45)	35% (292)	11% (87)	2.95	1.28

Note: figures in brackets are actual number of responses; percentages have been rounded to the nearest whole number and R indicates that the scores were reversed.

4.7 Overview of the questionnaire responses according to content area

4.7.1 Year 10

The total score achieved for the questionnaire, gained by the Year 10 pupils, was normally distributed and suggested that the questionnaire had generated a range of responses indicative of a range of perceptions of studying. The scores gained for each of the content areas in turn also demonstrated a normal distribution. Means, standard deviation and range for each content area appear in Table 21.

Table 21: Mean, standard deviation and range for each content area in Year 10

	Minimum	Maximum	Mean	SD	Total possible
Coursework	31	72	49.42	6.482	80
Examination	40	94	66.46	8.457	110
Homework	12	40	26.54	4.206	45
Study	31	71	52.73	5.833	75
Research	19	42	29.63	3.691	45
Total score	165	298	224.79	19.893	355

Means, standard deviation and range were also calculated for the responses to individual questions across each content area (see Table 22). Given the rating scale used for the questionnaire the maximum response obtainable was five and the minimum was one.

Table 22: Mean scores, standard deviation and range of the responses to individual questions in each content area for Year 10

	Mean	SD	Min.	Max.	Range
Coursework	3.09	.405	1.94	4.5	2.56
Examinations	3.02	.384	1.82	4.27	2.45
Homework	2.95	.467	1.33	4.44	3.11
Study	3.52	.389	2.07	4.73	2.66
Research	3.29	.410	2.11	4.67	2.56

Of interest was the similarity of mean responses for coursework and examinations (see Table 22).

4.7.2 Year 11

Similar to the Year 10 findings, in Year 11 the total score achieved for the questionnaire was normally distributed and suggested that the questionnaire had generated a range of responses indicative of range of experiences of studying. Scores gained for each of the

content areas in turn also demonstrated a normal distribution. Means, standard deviation and range for each content area appear in Table 23.

Table 23: Mean, standard deviation and range for each content area for Year 11

	Minimum	Maximum	Mean	SD	Total possible
Coursework	28	70	49.12	6.685	80
Examination	45	95	67.79	7.998	110
Homework	14	43	26.51	4.275	45
Study	31	69	52.88	5.753	75
Research	15	42	29.65	3.426	45
Total score	159	298	225.95	19.208	355

Table 24: Mean scores, standard deviation and range of the responses to individual questions in each content area for Year 11

	Mean	SD	Min.	Max.	Range
Coursework	3.07	.418	1.75	4.38	2.63
Examinations	3.08	.364	2.05	4.32	2.27
Homework	2.95	.475	1.56	4.78	3.22
Study	3.53	.384	2.07	4.6	2.53
Research	3.05	.359	1.44	4.22	2.78

Table 24 provides the mean response scores for individual items in each content area. As with Year 10, the mean response scores for coursework and examinations were similar. Perceptions of homework, as with Year 10, gained the lowest mean response score.

4.7.3 Gender

In Year 10 508 (57%) pupils were boys and 384 (43%) were girls. The mean and standard deviation were calculated for the Year 10 pupils according to gender (see

Table 25). Multivariate ANOVA revealed no significant differences according to gender for the total score or for the content areas.

Table 25: Means and standard deviations for Year 10 content areas according to gender

	Boys		Girls	
	Mean	SD	Mean	SD
Coursework	49.33	6.428	49.55	6.558
Examinations	66.81	8.433	65.98	8.476
Homework	26.47	4.031	26.64	4.431
Study	52.83	5.925	52.6	5.713
Research	29.73	3.78	29.5	3.57
Total Score	225.17	19.308	224.28	20.658

In Year 11 445 (53.9%) of the pupils were boys and 381 (46.1%) were girls. Means and standard deviation according to gender are presented in Table 26.

Table 26: Means and standard deviations for Year 11 content areas according to gender

	Boys		Girls	
	Mean	SD	Mean	SD
Coursework	48.89	6.488	49.39	6.907
Examinations	68.36	8.068	67.13	7.875
Homework	26.56	4.243	26.45	4.318
Study	53.11	5.782	52.62	5.716
Research	29.66	3.453	29.64	3.4
Total Score	226.58	18.619	225.22	19.873

Multivariate ANOVA revealed no significant differences according to gender for the total score or for the content areas for coursework, homework, study and research. A significant difference was found for examinations ($F(1, 824) = 4.87$, $p = .028$, partial η^2

= .01). Here the girls gained a lower mean score for examinations, indicating a less positive perception of studying for this element of the GCSE than the boys. In Year 10, no gender differences were found.

4.7.4 Socio-economic status

All pupils were asked the occupation of both parents. These were categorised according to the Registrar General's classification (1990) as outlined in the development of the research instrument (see 3.1.2). Most Year 10 and 11 pupils reported that their parents worked in a managerial or technical capacity (see Table 27).

Table 27: Classification of higher parental occupation according to the Registrar General's System

	Year 10 (N = 809) *Percentage (N)*	*Year 11 (N =767)* *Percentage (N)*
Professional	13.7% (111)	13.6% (104)
Managerial/technical	40.2% (325)	42.6% (327)
Skilled non-manual	20% (162)	20.2% (155)
Skilled manual	20.9% (169)	19.2% (147)
Partly skilled manual	2% (16)	2.2% (17)
Unskilled	0.4% (3)	0.3% (2)
Retired/housewife	2.8% (23)	2% (15)

Given the small proportion of pupils indicating that their parents' occupation was categorised as being partly skilled manual, unskilled or retired/housewife these were omitted from further analysis. An alternative indicator of socio-economic status was gathered using eligibility for free school meals as a measure. A minority of pupils reported that they were eligible for free school meals. Of the Year 10 pupils 8.2% (74) responded that they were eligible for free school meals; this percentage fell to 7.9% (65) within the Year 11 cohort and hence no further analysis was carried out using this variable.

Means and standard deviations were calculated for each content area according to socio-economic status as indicated by parental occupation (see Table 28). When in Year 10, the mean scores were similar across the four socio-economic groups for examinations, homework, study and research. However, there appeared to be differences in perceptions of coursework, with those pupils classified within the skilled manual group gaining a higher mean score than their peers. In Year 11 this pattern was repeated, although it appeared that those classified within the professional group had a more positive perception of examinations.

Multivariate ANOVA revealed no significant differences according to parental occupation for total score or for the content areas for examination, homework, study and research. A significant difference was found for coursework when pupils were in Year 10 ($F(3, 763) = 3.79$, $p = .01$, partial $\eta^2 = .02$) and in Year 11 ($F(3, 728) = 3.406$, $p = .017$, partial $\eta^2 = .01$). Post hoc Tukey tests showed the following. When in Year 10 there was a significant difference between the mean coursework score gained from those in the skilled manual compared to those in the professional group ($p = .01$). Pupils in the skilled manual group gained the higher mean score for perceptions of doing coursework.

Table 28: Means and standard deviations for each content area according to socio-economic status

	Year 10		*Year 11*	
Coursework	Mean	SD	Mean	SD
Professional (85)	48.58	5.903	47.31	5.627
Managerial/technical (258)	48.99	6.286	48.67	6.979
Skilled non-manual (116)	49.82	6.976	48.93	6.607
Skilled manual (120)	51.16	6.739	50.56	6.693
Examinations	Mean	SD	Mean	SD
Professional (85)	66.91	8.104	68.24	7.34
Managerial/technical (258)	66.55	8.546	67.98	7.914
Skilled non-manual (116)	66.49	8.464	66.55	8.139
Skilled manual (120)	66.67	8.775	67.95	8.487
Homework	Mean	SD	Mean	SD
Professional (85)	26.28	4.11	26.55	3.442
Managerial/technical (258)	26.18	4.307	25.99	4.218
Skilled non-manual (116)	26.81	4.348	26.34	4.674
Skilled manual (120)	27.41	4.277	26.78	4.015
Study	Mean	SD	Mean	SD
Professional (85)	53.25	5.982	53.06	5.945
Managerial/technical (258)	52.86	5.433	53.16	5.731
Skilled non-manual (116)	52.78	5.472	53.02	4.982
Skilled manual (120)	52.78	6.251	53.32	5.669
Research	Mean	SD	Mean	SD
Professional (85)	29.81	2.881	29.45	3.329
Managerial/technical (258)	29.91	3.855	29.98	3.193
Skilled non-manual (116)	29.75	3.901	28.95	3.65
Skilled manual (120)	29.33	3.642	29.46	3.716

In Year 11 there was a significant difference between the coursework score gained from children whose parents were in the skilled manual group compared to those in the professional and managerial/technical groups ($p = .024$ and $p = .03$ respectively). As in

Year 10, pupils in the skilled manual group gained the higher mean score for perceptions of coursework.

4.7.5 Ethnicity

Table 29 sets out the proportion and number of Year 10 and 11 pupils participating in the research according to ethnic group.

Table 29: Classification of pupils according to ethnic group

	Year 10 (N = 892) *Percentage (N)*	*Year 11 (N = 828)* *Percentage (N)*
African	2.5% (22)	3.4% (28)
Bangladeshi	0.6% (5)	0.8% (7)
Caribbean	1.8% (16)	1.3% (11)
Chinese	0.7% (6)	0.8% (7)
Indian	3.5% (31)	3.7% (31)
Pakistani	1.7% (15)	1.7% (14)
Sri Lankan	1.2% (11)	1.2% (10)
White	82.2% (733)	81.4% (674)
Other	5.9% (53)	5.6% (46)

Of the pupils participating in either Year 10 or 11 the majority were of white ethnic background. Given the small level of representation from other ethnic groups any further statistical analysis would have been severely compromised given the small cell sizes. For this reason no analysis was undertaken to explore how perceptions of studying may be mediated by ethnicity.

4.7.6 Relationship between content areas

Pearson correlation coefficients were calculated across content areas for Year 10 and Year 11 pupils (see Tables 30 and 31).

Table 30: Year 10 Pearson correlation coefficients for content areas

		Coursework	Examinations	Homework	Study	Research	Total Score
Coursework	r	1.000	.371**	.412**	.349**	.195**	.709**
	Sig.	.	.001	.001	.001	.001	.001
Examinations	r		1.000	.368**	.404**	.291**	.796**
	Sig.		.	.001	.001	.001	.001
Homework	r			1.000	.276**	.228**	.625**
	Sig.			.	.001	.001	.001
Study	r				1.000	.308**	.694**
	Sig.				.	.001	.001
Research	r					1.000.	.511**
	Sig.					.	.001

** Correlation is significant at the 0.01 level (2-tailed)

Among the Year 10 pupils all content areas gave highly significant although only moderate correlations with total score (see Table 30). Values of r obtained for all content areas correlated at highly significant although moderate levels with each other.

Table 31: Year 11 Pearson correlation coefficients for content areas

		Coursework	Examinations	Homework	Study	Research	Total Score
Coursework	r	1.000	.308**	.49**	.376**	.173**	.729**
	Sig.	.	.001	.001	.001	.001	.001
Examinations	r		1.000	.325**	.398**	.256**	.761**
	Sig.		.	.001	.001	.001	.001
Homework	r			1.000	.282**	.097**	.63**
	Sig.			.	.001	.005	.001
Study	r				1.000	.25**	.703**
	Sig.				.	.001	.001
Research	r					1.000.	.442**
	Sig.					.	.001

** Correlation is significant at the 0.01 level (2-tailed)

As anticipated, among the Year 11 pupils, all content areas gave highly significant although only moderate correlations with total score (see Table 31). Values of r

obtained for all content areas correlated at highly significant although moderate levels with each other. This was similar to the findings from Year 10.

4.8 Reported homework

The amount of homework that Year 10 pupils reported completing each week gave a range of 43.5 hours with a mean of 9.45 and standard deviation 5.31. Most Year 10 pupils completed between 5 and 12.5 hours homework each week. Seven pupils gave extreme scores, with three boys reporting doing over forty hours homework each week.

The amount of homework that Year 11 pupils reported completing each week gave a range of 35 hours, which was narrower than reported in Year 10. The mean of 10.22 was slightly higher than that found with the Year 10 cohort and there was a suggestion of less variability within the homework hours reported: standard deviation 4.96. Most Year 11 pupils completed between 5 and 12.5 hours homework each week. Two pupils gave extreme scores and reported completing more than thirty hours homework each week. In total there were 11 outliers, who appeared to be completing much more homework than their peers.

4.9 Importance of GCSEs

97.5% of Year 10 pupils responded that it was important for them to do well in their GCSEs (see Table 32). Here pupils responded to a four-point rating scale whereby 1 suggested a high level of importance or feeling very confident and 4 suggested that GCSEs were not important or pupils were lacking confidence. While pupils regarded the GCSEs as important (mean 1.2, standard deviation 0.472) they were less confident in their ability to succeed in their GCSEs (mean 2.43, standard deviation 0.698).

Table 32: Year 10 percentage pupil attitudes towards taking GCSEs

	Very important	*Quite important*	*Don't mind*	*Not important*
Importance of doing well in GCSEs	82.9% (736)	14.6% (130)	2.1% (19)	0.3% (3)
	Very confident	*Quite confident*	*Not sure*	*Not at all confident*
Confidence in doing well at GCSE	6.7% (59)	49.3% (437)	38.7% (343)	5.4% (48)

Note: figures in brackets are actual number of responses.

98.9% of Year 11 pupils responded that it was important for them to do well in the GCSEs (see Table 33). While pupils regarded the GCSEs as important (mean 1.18, standard deviation 0.421) they were less confident in their ability to succeed in their GCSEs (mean 2.34, standard deviation 0.7).

Table 33: Year 11 percentage pupil attitudes towards taking GCSEs

	Very important	Quite important	Don't mind	Not important
Importance of doing well in GCSEs	83.6% (692)	15.3% (127)	0.8% (7)	0.2% (2)
	Very confident	Quite confident	Not sure	Not at all confident
Confidence in doing well at GCSE	7.9% (65)	55.8% (462)	30.9% (256)	5.4% (45)

Note: figures in brackets are actual number of responses.

In comparison with the Year 10 pupils, a smaller proportion of Year 11 students reported that they did not mind the importance of doing well in their GCSEs.

While pupils regarded the GCSEs as important, levels of anticipated attainment varied (see Table 34). At this stage of the GCSE course almost half of the Year 10 students anticipated gaining 5 or more GCSEs at grades A*-C; almost a quarter, though, were unsure.

Table 34: Year 10 anticipated results

	Percentage (N)
No GCSEs	0.5% (4)
1-4 GCSEs at grades D-G	3.1% (27)
5 or more GCSEs at grades D-G	4.4% (39)
1-4 GCSEs at grades A*-C	20.5% (181)
5 or more GCSEs at grades A*-C	47.5% (420)
Not sure	24% (214)

In comparing the Year 10 anticipated results in relation to those who obtained or did not obtain 5 or more GCSEs at grades A*-C there were significant differences between the groups (χ^2 (5) = 257.78, p = .001). Of those students who anticipated gaining 5 or more GCSEs at grades A*-C 94.1% (380 out of 404) achieved this (see Table 35).

Table 35: Year 10 anticipated GCSE results compared with those achieving 5 or more GCSEs at grades A-C*

	Number of pupils achieving 5 or more GCSEs at grades A-C*	*Number of pupils not achieving 5 or more GCSEs at grades A*-C*
Anticipated results		
No GCSEs	1	3
1-4 Grades D-G	2	24
5+ Grades D-G	4	30
1-4 Grades A*-C	121	55
5+ Grades A*-C	380	24
Not sure	109	97
Total	617	233

It seemed, though, that many students were less confident in their anticipated results. Of those anticipating 1-4 GCSEs at grades A*-C 68.8% (121 out of 176) achieved 5 or more GCSEs at this standard. Of interest is that when considering the results for those students who, in Year 10, reported being unsure of their final grades, the group was

almost equally split between those who gained 5 or more GCSEs at grades A*-C and those who did not.

In contrast to the findings from Year 10, no Year 11 students reported that they anticipated gaining no GCSEs (see Table 36). The pupils also seemed surer about their potential GCSE results with only 13.6% indicating that they were unsure of their anticipated results. This compared with 24% in Year 10. It appeared that the Year 11 pupils felt more positive about the GCSEs since 63.2% reported that they anticipated gaining 5 or more GCSEs at grades A*-C: this in contrast to the 47.5% of students who responded in the category during Year 10.

Table 36: Year 11 anticipated results

	Percentage (N)
1-4 GCSEs at grades D-G	2.3% (19)
5 or more GCSEs at grades D-G	5% (41)
1-4 GCSEs at grades A*-C	15.9% (132)
5 or more GCSEs at grades A*-C	63.2% (523)
Not sure	13.6% (113)

As with the Year 10 pupils, in comparing the Year 11 anticipated results in relation to those who obtained or did not obtain 5 or more GCSEs at grades A*-C there were significant differences between the groups (χ^2 (4) = 320.27, p = .001). Of those students who anticipated gaining 5 or more GCSEs at grades A*-C 93.1% (484 out of 520) achieved this. Of those anticipating 1-4 GCSEs at grades A*-C 52.3% (69 out of 132) achieved 5 or more GCSEs at this standard (see Table 37). Most pupils appeared to have a reasonable perception of their likely GCSE results.

Table 37: Year 11 anticipated GCSE results compared with those achieving 5 or more GCSEs at grades A-C*

	Number of pupils achieving 5 or more GCSEs at grades A-C*	*Number of pupils not achieving 5 or more GCSEs at grades A*-C*
Anticipated results		
1-4 Grades D-G	0	19
5+ Grades D-G	3	38
1-4 Grades A*-C	69	63
5+ Grades A*-C	484	36
Not sure	53	59
Total	609	215

The majority of Year 10 pupils reported an intention to continue their education by taking AS and A Levels after studying for their GCSEs (see Table 38). With regard to their intention after GCSEs, the Year 11 pupils reported being more likely to stay on at school and embark on AS and A Levels. In Year 10 12.3% of pupils reported that they were going to get a job after their GCSEs.

Table 38: Intention after GCSEs for Year 10 and Year 11

	Year 10	*Year 11*
	Percentage (N)	*Percentage (N)*
Get a job	12.3% (109)	4.5% (37)
AS and A Levels	76.9% (679)	81.4% (674)
GNVQ	3.1% (27)	6.5% (54)
Apprenticeship	4.5% (40)	4.2% (35)
Other	3.2% (28)	3.4% (28)

Pupils were also requested to specify their intended career. The responses were coded according to the Registrar General classification system (1990). Whether in Year 10 or

Year 11, over half of the pupils indicated a future career classified as professional or managerial/technical (see Table 39).

Table 39: Career plans classified according to the Registrar General classification system for Year 10 and Year 11

	Year 10	*Year 11*
	Percentage (N)	Percentage (N)
Professional	19.6% (175)	17.3% (143)
Managerial/technical	33% (294)	35.4% (293)
Skilled non-manual	4.3% (38)	5.9% (49)
Skilled manual	11.3% (101)	11.2% (93)
Partly skilled manual	0.3% (3)	0.1% (1)
Armed Forces	1.8% (16)	2.3% (19)
Unsure	29.7% (265)	27.8% (230)

4.10 Sources of support

88% (769) of Year 10 pupils reported some parental involvement with their homework; however, most only asked for help sometimes (see Table 40). 88% (769) of Year 11 pupils reported some parental involvement with their homework; however, most only asked for help sometimes. The findings were similar to the Year 10 cohort.

Table 40: Years 10 and 11 parental involvement in homework

	Year 10	*Year 11*
	Percentage (N)	*Percentage (N)*
All the time	5% (44)	4.8% (40)
A lot	19% (166)	20.8% (172)
Sometimes	64% (559)	62.2% (514)
Not at all	12% (105)	12.2% (101)

The majority of Year 10 pupils had access to a computer at home (57.8%) (see Table 41). 83.2% of Year 10 pupils reported having Internet access at home. The high level of access to computers and the Internet at home reflected the importance placed on these resources within the questionnaire.

Table 41: Home access to computers in Year 10 and 11

	Year 10		Year 11	
	Yes	No	Yes	No
Computer access at home	92.7% (827)	7.2% (64)	96.4% (798)	3.6% (30)
Own computer at home	57.8% (516)	42% (375)	65.8%(545)	34.2% (283)
Internet access at home	83.2% (742)	16.6%(148)	87.8% (727)	12.2% (101)

Note: figures in brackets are actual number of responses.

The majority of Year 11 pupils (65.8%) also had access to a computer at home (see Table 41). This was higher than in Year 10. 87.8% of Year 11 pupils reported having Internet access at home.

Pupils were asked about attendance at computer and homework clubs that were available in schools. More Year 10 pupils engaged in after school homework clubs than those operating in lunchtimes (see Table 42).

Table 42: Year 10 use of computer and homework clubs

	Yes	*No*
	Percentage (N)	*Percentage (N)*
Lunchtime homework club	12.4% (108)	87.6% (761)
After school homework club	28.9% (251)	69.3% (618)
Lunchtime computer club	24.8% (216)	75.2% (654)
After school computer club	33% (287)	65.4% (583)

More students attended computer clubs than homework clubs, but again the preference was for clubs running after school. Most Year 10 pupils reported completing their

homework at home (731, 86%) and alone (744, 87.8%). Few pupils reported completing their homework with friends (46, 5.4%).

Year 11 students reported a greater use of homework and computer clubs than the Year 10 pupils (see Table 43). As before, pupils seemed to prefer clubs operating after school, and computer clubs attracted more students than homework clubs.

Table 43: Year 11 use of homework and computer clubs

	Yes *Percentage (N)*	*No* *Percentage (N)*
Lunchtime homework club	17.5% (145)	82.5% (682)
After school homework club	33.7% (279)	66.2% (548)
Lunchtime computer club	27.3% (226)	72.7% (601)
After school computer club	36% (298)	64% (529)

Most pupils reported completing their homework at home (667, 80.9%) and alone (735, 89.2%). Few pupils reported completing their homework with friends (51, 6.2%). In comparison to the Year 10 cohort, a slightly higher proportion of pupils reported that they completed homework at school. Among the Year 11 pupils, 8.1% (67) reported that they completed their homework solely in school, with a further 8.7% (72) responding that they completed homework in school and at home. For the Year 10 cohort, 36 (4.2%) reported completing homework only in school, with 8.8% (75) completing homework in school and at home. This was supported by the higher attendance figures for computer and homework clubs.

4.11 Attainment and perceptions of studying for GCSE

4.11.1 SATs

As a measure of prior attainment, Key Stage 3 SATs results were gathered from all schools where possible. These had been taken during the summer term 2001 when the pupils were in Year 9. In two of the selective schools, these results were only available for mathematics: the schools did not enter pupils for Key Stage 3 SATs in either English or science. In one school the results were unavailable due to administrative difficulties. Where possible, individual scores for SATs results for maths, English and science were entered and then an average SATs score calculated for each pupil. The average Key Stage 3 SATs score for the Year 10 cohort ranged between 2 and 8. The range for the Year 11 cohort was identical. The mean average Key Stage 3 SATs score for the Year 10 cohort was 5.68 with a standard deviation of 1.154. Among the Year 11 cohort the mean average Key Stage 3 SATs score was 5.77 with a standard deviation of 1.143. This was similar to the cohort of Year 10 students.

4.11.2 GCSE: Year 10

All pupils took GCSEs in the summer term 2003 and their individual results were collected in September 2003. Pupils were allocated a point score for each grade achieved following the standard convention whereby A*=8, A=7... G=1 (Demack et al., 2000). This provided a GCSE score that reflected the number of passes and grades. These scores were then used to calculate a mean GCSE score for each pupil that removed discrimination against pupils who had taken fewer examinations due to school policy. For the Year 10 pupils, the mean average number of points per GCSE was 5.37 with a standard deviation of 1.572. This mean equated to an average point score that represented just above a C grade. The range at 8 showed variation among the Year 10 students with the average points awarded ranging from 0 to 8. The distribution of

average points per GCSE was normal. The mean number of GCSEs entered was 9.55 with a standard deviation of 1.375. This masked a range of entry patterns whether students were entered for between 2 and 12 GCSEs. The majority of Year 10 students were ultimately entered for 10 GCSEs (see Table 44).

Table 44: Year 10 Profile of GCSE examinations

	Mean	SD	Minimum	Maximum
Number of GCSEs entered	9.55	1.375	2	12
Number of GCSEs grades A*-C	7.18	3.66	0	12
Number of GCSEs grades A*-G	9.43	1.656	0	12
Total number of points awarded	52.66	18.833	0	92.5
Average point score per GCSE	5.37	1.572	0	8

Pearson correlation coefficients were calculated to explore the relationship between SATs score, the total score and each content area for the questionnaire, the total hours of homework reported each week and the average point score awarded for GCSEs (see Table 45). As might be anticipated, there was a strong significant positive correlation between average SATs score and the average point score awarded for GCSE $r = 0.846$ ($p = .001$).

Significant positive correlations, although low, were found between average points score for GCSE and total hours of homework reported, perceptions of study and research. A significant negative correlation was found between average points score for GCSE and experiences of coursework (see Table 45).

Table 45: Year 10 Pearson correlation coefficients for SATs, average GCSE points, homework hours and content areas

		Ave SATs	Ave GCSE points	Total homework hours	Course-work	Exam	Study	Home-work	Research	Total score
Ave SATs	r	1.000	.846**	.229**	-.094**	.044	.199**	-.024	.087**	.037
	sig.	.	.001	.001	.005	.186	.001	.001	.001	.268
Ave GCSE points	r		1.000	.288**	-.074*	.064	.156**	-.01	.102**	.066
	sig.		.	.001	.031	.059	.001	.781	.003	.055
Total homework hours	r			1.000	.034	.088*	.187**	.053	.152**	.14**
	sig.			.	.366	.018	.001	.154	.001	.001
Course-work	r				1.000	.371**	.349**	.412**	.195**	.709**
	sig.				.	.001	.001	.001	.001	.001
Exam	r					1.000	.404**	.368**	.291**	.796**
	sig.					.	.001	.001	.001	.001
Study	r						1.000	.276**	.308**	.694**
	sig.						.	.001	.001	.001
Home-work	r							1.000	.228**	.625**
	sig.							.	.001	.001
Research	r								1.000	.511**
	sig.								.	.001
Total score	r									1.000
	sig.									.

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

Given the significant correlations above, a multiple regression was carried out with the average number of points per GCSE as the dependent variable. The predictor variables entered into the regression model were the amount of homework hours reported each week, total questionnaire score and the score for the content areas. Although different approaches could have been adopted in the regression analysis, at this stage stepwise selection was used since it would generate the best and smallest set of predictors (Howitt and Cramer, 2000). The analysis revealed a Multiple R of .842 ($F= 846.232$, $p < .001$). The adjusted R Square indicated that the model accounted for 70.8% of the variance.

Table 46: Linear regression for average points per GCSE in Year 10

Variables included	Beta weight	t	Significance
Average SATs score	.815	38.663	< .001
Total homework hours per week	.091	4.326	< .001
Variables excluded			
Coursework	-.01	-.484	.629
Exam	.011	.536	.592
Study	.008	.363	.716
Homework	.008	.373	.709
Research	.014	.657	.511
Total score	.008	.372	.71

The best predictors for average points per GCSE were the average SATs score and the total number of homework hours reported each week (see Table 46). Of these the average SATs score (beta weight .815) made the greatest contribution.

4.11.3 GCSE: Year 11

Table 47 provides a profile of the Year 11 examinations. The mean average number of points per GCSE was 5.44 with a standard deviation of 1.493. (This mean equated to an average point score that represented just above a C grade.) The range at 6.8 showed variation among the Year 11 students with the average points awarded ranging from 1.2 to 8. The distribution of average points per GCSE was normal. The mean number of GCSEs entered was 9.66 with a standard deviation of 1.235. This masked a range of entry patterns whether students were entered for between 4 and 12 GCSEs. The majority of students were entered for 10 GCSEs.

Table 47: Year 11 Profile of GCSE examinations

	Mean	SD	Minimum	Maximum
Number of GCSEs entered	9.66	1.235	4	12
Number of GCSEs grades A*-C	7.33	3.582	0	12
Number of GCSEs grades A*-G	9.56	1.443	1	12
Total number of points awarded	53.65	17.965	5	92.5
Average point score per GCSE	5.44	1.493	1.2	8

Pearson correlation coefficients were calculated to explore the relationship between SATS score, the total score and content areas of the questionnaire, the total hours homework reported each week and the average point score awarded for GCSEs. There was a strong significant positive correlation between average SATs score and the average point score awarded for GCSE $r = 0.847$ ($p = .001$) (see Table 48).

Significant positive correlations, although low, were found between average GCSE points and the total hours of homework reported each week, perceptions of examinations, study, research and the total score.

Table 48: Year 11 Pearson correlation coefficients for SATs, average GCSE points, homework hours and content areas N = 826

		Ave SATs	Ave GCSE points	Total homework hours	Course-work	Exam	Study	Home-work	Research	Total score
Ave SATs	r	1.000	.847**	.292**	-.094**	.099**	.124**	-.073*	.035	.036
	Sig.	.	.001	.001	.007	.005	.001	.037	.322	.301
Ave GCSE points	r		1.000	.264**	-.051	.139**	.167**	-.022	.08*	.1**
	Sig.		.	.001	.143	.001	.001	.527	.021	.004
Total homework hours	r			1.000	.053	.102*	.101*	.045	.098*	.118**
	Sig.			.	.214	.017	.018	.297	.022	.006
Course-work	r				1.000	.308**	.376**	.49**	.173**	.729**
	Sig.				.	.001	.001	.001	.001	.001
Exam	r					1.000	.398**	.325**	.256**	.761**
	Sig.					.	.001	.001	.001	.001
Study	r						1.000	.282**	.25**	.703**
	Sig.						.	.001	.001	.001
Home-work	r							1.000	.097**	.63**
	Sig.							.	.005	.001
Research	r								1.000	.442**
	Sig.								.	.001
Total score	r									1.000
	Sig.									.

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

A multiple regression was carried out with the average number of points per GCSE as the dependent variable. Other variables entered into the regression model were the amount of homework hours reported each week, the total score and the score for the five content areas. The analysis revealed a Multiple R of .829 ($F = 379.901$, $p < .001$). The adjusted R Square indicated that the model accounted for 68.6% of the variance.

The best predictors for average points per GCSE were the average SATs score, the total number of homework hours reported each week, the total score for the questionnaire and the coursework score (see Table 49). Of these the average SATs score (beta weight

0.796) made the greatest contribution. This was different from the findings with the Year 10 cohort.

Table 49: Linear regression for average points per GCSE in Year 11

Variables included	Beta weight	t	Significance
Average SATs score	.796	35.92	< .001
Total homework hours per week	.072	3.255	.001
Total score	.125	3.937	<.001
Coursework	-.08	-2.489	.013
Variables excluded			
Examination	-.014	-.341	.733
Study	.005	.168	.866
Homework	-.006	-.218	.827
Research	.013	.523	.601

4.12 Summary of key findings

Perceptions of studying for GCSE appeared broadly similar across the two cohorts. While positive perceptions of studying were apparent with regard to the use of some effort management strategies and metacognitive strategies, time management was perceived to be a concern. Pupils also reported concerns with overload: this in relation to coursework, homework and examinations. Year 10 and 11 students perceived GCSEs to be important, but were less confident in their ability to succeed. Key Stage 3 SATs results were the most important predictor of average point score at GCSE; however, among the Year 11 students the total score for the questionnaire also made a significant positive contribution.

CHAPTER FIVE: CHANGES IN PERCEPTIONS OF STUDYING FOR GCSE AMONG YEAR 10 AND 11 PUPILS

5.1 Introduction

Six hundred and forty four pupils took part in the questionnaire survey in both Year 10 and 11. This chapter explores whether there were specific changes over time in this sample with regard to perceptions of studying for GCSE in relation to coursework, examinations, homework, study and research. The use of repeated measures analysis meant that there was greater control over individual differences.

Given the strong relationship demonstrated between average SATs score and attainment at GCSE (see 4.11.2 and 4.11.3) the intention was to use average SATs score as a covariate in the ensuing analysis. In this way, differences in prior knowledge could have been controlled for as part of the analytical procedure. It was disappointing that during the data collection one school was unable to provide the SATs data, this due to administrative problems. Hence there were two alternatives for the analysis. One solution was to remove all data pertaining to that school from any analysis; however, this accounted for over 100 pupils. The second solution was not to use average SATs as a covariate and include all pupils in the analysis. Given the large proportion of the variance accounted for by the average SATs score in relation to GCSE performance, it was felt that whether or not the average SATs score was used as a covariate would make no real difference to the analysis that followed. To confirm this, all repeated measures analysis was undertaken twice: once with the SATs score as a covariate and once without. No differences were found and thus the results reported here include all pupils who participated twice in the research.

5.2 Changes in perceptions of coursework

Common experiences of coursework throughout the two-year GCSE period were apparent in relation to finding it helpful to discuss coursework with friends, putting more effort into coursework than other work and producing several drafts before submitting the final piece of work (see Table 50).

Table 50: Mean, standard deviation and significance level for perceptions of coursework

N = 644, df = 643	Year 10		Year 11		t	Sig.
	Mean	SD	Mean	SD		
It's really important to have use of a computer at home for coursework	4.25	0.888	4.45	0.796	-5.105	<.001
I find coursework gives you the opportunity to explore your own ideas	3.42	1.158	3.38	1.179	.767	NS
I often spend long hours doing coursework because I am anxious for it to be right (R)	2.56	1.221	2.51	1.21	.894	NS
I try to break my coursework down into small tasks rather than seeing it as a massive project	3.31	1.266	3.16	1.255	2.48	NS
When given lesson time for coursework I prefer to chat with my friends and then work at home (R)	2.86	1.333	2.81	1.304	.712	NS
I like doing coursework because you can do it in your own time	3.1	1.318	3.05	1.355	.744	NS
I find that coursework tends to pile up (R)	2.43	1.254	2.19	1.190	3.889	<.001
I put more effort into coursework than other work	3.89	1.168	3.94	1.114	-.929	NS
I make sure that I check all my coursework drafts for any mistakes to see if I can improve	3.82	1.084	3.66	1.147	3.032	.003
I usually have to work really hard at the end to complete coursework (R)	2.46	1.266	2.23	1.193	3.733	<.001
I find it helpful to discuss coursework with my friends	3.72	1.141	3.75	1.106	-.533	NS
I get anxious about coursework (R)	2.67	1.291	2.57	1.246	1.659	NS
I feel that you get less help from teachers for coursework (R)	2.94	1.34	3.07	1.304	-2.045	NS
It's difficult to manage the time required for coursework because there is no limit to what could be done (R)	2.58	1.21	2.55	1.212	.422	NS
I'm not always sure about what is required for coursework (R)	2.65	1.227	2.67	1.241	-.397	NS
I tend to do several drafts of coursework before submitting the final piece of work	3.08	1.304	3.16	1.273	-1.363	NS

Note: R indicates that the scores were reversed.

It seemed that pupils remained concerned about the time required for coursework; some continued to feel anxious about understanding the requirements of coursework, and were anxious about coursework. The use of a computer for coursework was regarded as

important in both Years 10 and 11, but there was a suggestion that this was even more important in Year 11 as evidenced by the higher mean and the smaller standard deviation.

Responses to some questions indicated that aspects of perceptions of coursework were less positive than in Year 10. The lower means gained when in Year 11 suggested that some pupils were less able to break coursework down into smaller tasks, were less likely to check all coursework drafts in order to improve, were more inclined to respond that coursework piles up and that they found themselves working really hard at the end to complete coursework.

Repeated measures analysis revealed a main effect for perceptions of coursework (Λ = .208, F (15, 629) = 159.83, p <.001, partial η^2 = .79) and a significant interaction between the perceptions of coursework and year (Λ= .888, F (15, 629) = 5.272, p< .001, partial η^2 = .11). Although there was a main effect for perceptions of coursework, when an interaction effect is significant, main effects are not usually interpreted since it is important to understand why the interaction between perceptions of coursework and year yielded significance (Green et al., 2000). Thus paired sample t-tests were carried out to follow up the significant interaction. One potential problem with this is that in carrying out multiple comparisons between pairs of variables the more likely it is that a significant difference will be found merely due to chance (Howitt and Cramer, 2000). To adjust for this, and hence control for family wise error rate, the Bonferroni method was used whereby the significance level was shared between the number of comparisons made. This gave an acceptable level of significance of .003 (.05 divided by 16). Significant differences between Year 10 and Year 11 pupils were found for: the importance placed on having a computer for homework (t (643) = -5.105, p < .001, d = -

.2); the notion that coursework tends to pile up ($t(643) = 3.889$, $p < .001$, $d = .15$); checking coursework drafts for improvement ($t(643) = 3.032$, $p = .003$, $d = .12$) and having to work really hard at the end ($t(643) = 3.773$, $p < .001$, $d = .15$) (see Table 50). As indicated by the lower mean, when in Year 11, pupils were less likely to check coursework drafts for improvement than in Year 10; however, they were more likely to respond that coursework piles up and that they have to work really hard at the end to complete coursework.

5.3 Changes in perceptions of examinations

Experiences common to examinations when in Year 10 and 11 were seen in relation to revising in short bursts since it enabled better concentration, testing oneself when revising to ensure understanding and that something has been remembered, and revising more for subjects that are perceived as difficult. While these could be regarded as positive strategies, there was evidence of continued use of less helpful strategies. Pupils continued to feel overwhelmed by the volume of material to be revised, remained anxious about examinations because they didn't feel that they did their best, found it hard to memorise things and reported remembering little once the examination was over (see Table 51).

Notwithstanding the levels of anxiety, when in Year 11 there was evidence of some change in perception of this element of the GCSE as evidenced by the higher mean. Particularly apparent was the use of additional resources to aid revision such as the Internet, the use of practice papers and the increased importance placed on revision guides.

Table 51: Mean, standard deviation and significance level for perceptions of examinations

df = 643	Year 10		Year 11		t	Sig.
	Mean	SD	Mean	SD		
I prefer exams because you know what you've got to learn	2.89	1.21	3.03	1.226	-2.281	NS
I usually plan my revision weeks in advance	2.63	1.235	2.71	1.223	-1.475	NS
I find websites (e.g. BBC Bitesize) helpful when revising for exams	3.07	1.274	3.31	1.305	-4.085	<.001
I go through lots of practice questions and past papers to help prepare for the exams	3.15	1.237	3.51	1.149	-6.112	<.001
I find it helpful to revise with my friends	3.03	1.373	3.05	1.29	-.402	NS
Most of the exams are based on the work that I have done during the GCSE course so I don't feel that there is much to revise	2.46	1.167	2.41	1.161	.757	NS
When revising I test myself to check that I understand everything	3.61	1.172	3.64	1.078	-.757	NS
I find it hard to memorise things (R)	2.83	1.35	2.83	1.376	-.054	NS
I tend to revise in short bursts because I concentrate better that way	3.45	1.194	3.42	1.206	.48	NS
I tend to revise more for subjects that I find difficult	3.6	1.254	3.59	1.189	.1	NS
I get anxious about exams because I don't feel that I do my best (R)	2.32	1.259	2.43	1.252	-1.725	NS
I vary the amount of revision I do depending on whether I find the subject easy or difficult	3.74	1.088	3.76	1.107	-.402	NS
I feel that I have to spend hours rote-learning facts for a lot of the exams (R)	2.85	1.192	2.73	1.182	1.968	NS
I use different ways of revising	3.15	1.23	3.18	1.218	-.526	NS
I don't feel confident in assessing whether I know something or not (R)	2.87	1.144	2.91	1.122	-.628	NS
When revising I usually test myself to see if I remember things	3.63	1.176	3.59	1.155	.602	NS
I find it difficult to make notes for revision (R)	3.05	1.331	3.03	1.308	.351	NS
If I know I don't understand something then I avoid those questions (R)	3.04	1.281	3.15	1.253	-2.043	NS
I usually try to remember lots of facts for exams rather than gaining an overview (R)	2.67	1.092	2.63	1.14	.773	NS
Once the exam is over I find that I remember very little (R)	2.72	1.268	2.57	1.199	2.586	NS
I usually use revision guides to help me prepare for exams	3.63	1.207	3.95	1.124	-5.515	<.001
I feel that there is so much to learn that I find it difficult to know what to revise (R)	2.30	1.137	2.34	1.191	-.715	NS

Note: R indicates that the scores were reversed.

Repeated measures analysis gave a main effect for examination ($\Lambda = .259$, $F(21, 623) = 85.081$, $p < .001$, partial $\eta^2 = .74$), year ($\Lambda = .986$, $F(1, 643) = 9.431$, $p = .002$, partial η^2

= .01) and a significant interaction between perceptions of examination and year (Λ = .861, F (21, 623) = 4.796, p <.001, partial η^2 = .14). Paired sample t-tests were carried out to follow up the significant interaction and Type I errors controlled for using the Bonferroni approach. This gave an acceptable level of significance of .0023 (.05 divided by 22). Significant differences between Year 10 and Year 11 were found for usefulness of the Internet for revision (t (643) = -4.085, p <.001, d = -.16), the use of practice questions and past papers (t (643) = -6.112, p <.001, d = -.24) and the use of revision guides (t (643) = -5.515, p <.001, d = -.22). When in Year 11 the mean for all these was higher than that gained in Year 10.

5.4 Changes in perceptions of homework

Throughout the GCSE course pupils, whether in Year 10 or 11, attempted to plan homework so that is was manageable, especially in relation to the work required for the next day (see Table 52).

Table 52: Mean, standard deviation and significance level for perceptions of homework

df = 643	Year 10		Year 11		t	Sig.
	Mean	SD	Mean	SD		
I try to plan my homework so that it is manageable	3.14	1.238	3.13	1.189	.028	NS
I usually do my homework at school	2.29	1.158	2.44	1.249	-2.586	NS
If I don't feel that homework is important then I do it in the shortest time possible (R)	3.09	1.286	2.91	1.282	2.905	.004
I usually take regular breaks when doing my homework	3.47	1.254	3.47	1.19	-.055	NS
I find it difficult to concentrate when working at home (R)	3.51	1.324	3.49	1.317	.449	NS
I usually leave my homework until it absolutely has to be done (R)	3.06	1.347	2.94	1.319	2.099	NS
Sometimes I have to work really long hours to finish my homework (R)	2.41	1.272	2.44	1.249	-.48	NS
The amount of homework varies so much that it is difficult to plan my work (R)	2.38	1.159	2.4	1.141	-.498	NS
I always plan what homework I have to complete by the next day	3.37	1.259	3.29	1.262	1.319	NS

Note: R indicates that the scores were reversed.

There was no difference in their approach to taking regular breaks when completing homework and few reported difficulties in being able to concentrate when working from

home. Whether in Year 10 or 11 it appeared that pupils continued to be concerned with the variability in the amount of homework set and the impact of this on planning their work. Pupils were also as likely to have to work really long hours to complete their homework on some occasions.

The mean number of hours' homework that pupils reported completing each week varied across the two years with pupils reporting completing more homework in Year 11 than when in Year 10 (see Table 53). There was, though, less variation in the amount of homework completed in Year 11. The difference was significant ($t(489) = -3.407$, $p = .001$, $d = -.12$).

Table 53: Reported homework hours during Year 10 and 11

N = 490	Mean	SD	Minimum	Maximum
Year 10	9.66	5.043	1.5	44
Year 11	10.5	4.987	0	35

A change of approach seemed to have occurred in relation to the proportion of pupils reporting that they usually completed their homework at school. While the low mean suggested that this was not the case for most pupils, by Year 11 more pupils appeared to complete homework at school. This was supported by the increase in pupils attending homework or computer clubs during lunchtime and the increase in pupils attending after school homework clubs (see Table 54).

Table 54: Use of homework and computer clubs during Year 10 and 11

	Year 10	Year 11
	Yes	Yes
Homework lunchtime	11.2% (71)	16.4% (106)
Homework after school	27.8% (176)	32.2% (208)
Computer lunchtime	25.9% (164)	28.7% (185)
Computer after school	34.7% (220)	34.7% (220)

Note: figures in brackets are actual number of responses.

More notable were apparent changes in relation to the importance placed on homework in relation to the time taken and whether homework was left until it had to be completed. In both instances the Year 11 pupils gained the lower mean indicating that by this stage in their GCSEs they were more likely to complete homework that was perceived to be unimportant in a short time and to leave homework until it had to be done.

Repeated measures analysis gave a main effect for homework ($\Lambda = .406$, $F(8, 636) = 116.538$, $p < .001$, partial $\eta^2 = .59$) and a significant interaction between perceptions of homework and year group ($\Lambda = .970$, $F(8, 636) = 2.492$, $p = .011$, partial $\eta^2 = .03$). Paired sample t-tests were carried out to follow up the significant interaction and Type I error rate controlled for using the Bonferroni approach. This gave an acceptable level of significance of .0055 (.05 divided by 9). A significant difference was found according to the approach taken in Year 10 and in Year 11: If homework was not seen as important then it was more likely to be completed in the shortest time possible ($t(643) = 2.905$, $p = .004$, $d = .12$) (see Table 52).

5.5 Changes in perceptions of study

Consistency of perceptions of study was apparent with regard to whether pupils were aware of when they failed to understand something, as indicated by the high mean (see Table 55). Other positive study strategies that seemed consistent across the two-year course involved re-reading for understanding and ensuring a comfortable environment for effective study. In both years students spent time being critical of their own work in order to improve, made an effort to improve understanding, were similarly aware of what was required to gain a good mark and changed tasks if work wasn't going well. Pupils made use of feedback from teachers, although the slightly higher mean gained in

Year 11 suggested that this was now more important. Of interest was that in Year 11 pupils reported being less likely to work in front of the television to prevent boredom, although this along with other findings was not statistically significant.

Table 55: Mean, standard deviation and significance level for perceptions of study

df = 643	Year 10		Year 11		t	Sig.
	Mean	SD	Mean	SD		
I find it helpful to work with music playing because it helps me to concentrate	3.47	1.33	3.41	1.311	1.019	NS
I'm unsure whether my work is any good or not (R)	2.89	1.184	2.94	1.19	-.871	NS
I often work in front of the TV because it prevents me from getting bored (R)	3.57	1.352	3.7	1.297	-2.288	NS
I usually make sure that I have everything I need before starting work	3.52	1.204	3.6	1.142	-1.413	NS
I often re-read things if I don't understand the first time	4.36	0.743	4.32	0.749	.88	NS
I spend time being critical of my own work since it helps me to produce better work	3.31	1.152	3.3	1.148	.167	NS
Wherever I'm working I make sure that I feel comfortable so that I can focus on what I have to do	4.01	0.963	4.02	0.913	-.329	NS
I find it difficult to organise my work so that I have some time to relax each evening (R)	2.71	1.296	2.75	1.269	-.611	NS
If my work isn't going well then I find it helpful to change to another task for a while and then go back	3.61	1.206	3.6	1.102	.262	NS
I know what I need to do to get a good mark	3.50	1.229	3.52	1.213	-.343	NS
I find it hard to accept criticism of my work (R)	3.37	1.233	3.36	1.218	.243	NS
I make use of the feedback from teachers since it helps me to improve	3.88	1.06	3.97	0.929	-1.786	NS
If I am unsure about something then I make an effort to improve my understanding	3.70	1.001	3.78	0.951	-1.657	NS
Often I have to cancel seeing my friends or going out because I have too much work to do (R)	2.98	1.386	2.84	1.343	2.271	NS
I am aware when I don't understand things	4.03	0.969	4.04	0.886	-.166	NS

Note: R indicates that the scores were reversed.

For some pupils there remained a concern about knowing whether their work was any good or not and finding it difficult to organise their work so that there was time to relax

each evening. Repeated measures analysis revealed no main effect for perceptions of study according to year or for interaction between year and perceptions of study.

5.6 Changes in perceptions of research

There was little change in perceptions of research across Year 10 and Year 11. The Internet was valued as a research tool and, although pupils often looked things up in other books, they were less likely to go to the library for further information. When in Year 11 many pupils continued to read more about areas that they found interesting and they appeared as likely to seek help from someone else if they felt unsure. It appeared that the perceived difficulties in summarising information remained a concern, as did the anxiety about making lots of notes before feeling confident enough to write an essay (see Table 56). There were no statistically significant differences. Repeated measures analysis revealed no main effect for perceptions of research in Year 10 or 11 or for the interaction between year and research.

Table 56: Mean, standard deviation and significance level for perceptions of research

df = 643	Year 10		Year 11		t	Sig.
	Mean	SD	Mean	SD		
I find it useful to have Internet access for research	4.34	0.867	4.36	0.835	-.417	NS
If I find my work difficult then I look things up in other books	3.46	1.192	3.52	1.085	-1.115	NS
I often go to the library for extra information	2.29	1.174	2.2	1.118	1.711	NS
When I need information about a topic I usually rely on the books that I have at home (R)	2.83	1.247	2.86	1.238	-.531	NS
I often read more about areas that interest me	3.92	1.082	3.9	1.072	.445	NS
I like gathering information from a range of sources and then forming my own opinion	3.27	1.195	3.23	1.175	.579	NS
I tend to write lots of notes about a topic before feeling confident enough to write an essay (R)	2.88	1.283	2.81	1.247	1.127	NS
If I feel unsure about something I ask for help from someone else	3.87	0.992	3.86	1.007	.123	NS
I find it difficult to summarise information (R)	2.87	1.326	2.93	1.289	-1.021	NS

Note: R indicates that the scores were reversed.

5.7 Overall perceptions of change across the content areas

Across each content area and the total score the means and standard deviations were similar. Noteworthy was the higher mean obtained in Year 10 for perceptions of coursework than in Year 11 in contrast to the higher mean obtained for examinations in Year 11 in relation to that in Year 10 (see Table 57).

Table 57: Mean, standard deviation and range for each content area

	Minimum	Maximum	Mean	SD
Year 10 coursework	31	72	49.74	6.53
Year 11 coursework	29	70	49.14	6.651
Year 10 exam	40	94	66.68	8.497
Year 11 exam	45	95	67.77	8.121
Year 10 homework	12	40	26.71	4.284
Year 11 homework	14	39	26.5	4.193
Year 10 study	35	71	52.91	5.79
Year 11 study	31	68	53.14	5.566
Year 10 research	20	42	29.73	3.673
Year 11 research	15	42	29.68	3.43
Year 10 total score	165	298	225.76	19.836
Year 11 total score	159	298	226.23	19.186

When exploring the differences across each content area, paired samples t-tests revealed significant differences between the two years with regard to perceptions of examination. Given that six paired t-tests were carried out then the accepted level of significance was reduced to control for Type I error using the Bonferroni procedure. 0.05 divided by six gave an acceptable level of significance of .008. When in Year 11 the pupils gained a significant higher mean score for perceptions of examination ($t(643) = -3.071$, $p = .002$,

d = -.12). This suggested that they were more positive about this aspect of the GCSE then when in Year 10. There were no significant differences across the remaining content areas or for the total score (see Table 58).

Table 58: Significance levels for differences across content areas in Years 10 and 11

	t (df = 643)	Sig.
Coursework	1.961	0.05
Examination	-3.071	0.002
Study	-0.976	0.329
Homework	1.096	0.273
Research	0.277	0.782
Total	-0.696	0.487

At all stages of the GCSE course pupils responded that it was important to them to do well. Here pupils responded to a four-point rating scale whereby 1 suggested a high level of importance or feeling very confident and 4 suggested that GCSEs were not important or pupils were lacking confidence. With regard to how confident pupils felt, the lower mean score gained by Year 11 pupils indicated that they were more confident in their ability to succeed than when in Year 10 (t (643) = 2.732, p = .006, d = .11) (see Table 59).

Table 59: Reported confidence and importance of GCSEs during Year 10 and 11

	Year 10		Year 11			
	Mean	SD	Mean	SD	t (643)	Sig.
Importance of doing well	1.18	0.432	1.17	0.405	0.556	NS
Confidence in ability	2.42	0.684	2.34	0.702	2.732	.006

5.10 Summary of key findings

When in Year 11 pupils' overall perception of the examination element of the GCSE suggested that they were more positive about this component than when in Year 10.

They also reported significantly higher levels of confidence in their ability to succeed in their GCSEs. No overall differences were found in relation to the other content areas. There were, though, more subtle differences in relation to specific aspects of studying for GCSEs. When in Year 11, pupils appeared to be under greater pressure than in Year 10. They reported completing more homework each week, were more likely to respond that coursework piles up and that they had to work really hard at the end to complete coursework.

Important, too, was that some perceptions of studying for GCSE had not altered over the duration of the course. Whether in Year 10 or 11, pupils were as likely to be concerned with understanding the requirements of coursework, to feel overwhelmed by the amount of material to be revised for the examination, to express concern over the variability of homework and the impact this had on their ability to plan their work and to find it difficult to summarise information.

CHAPTER SIX: UNDERLYING FACTORS IN PERCEPTIONS OF STUDYING FOR GCSE

6.1 Introduction

In this chapter exploratory factor analysis is carried out on the Year 10 and Year 11 data: the aim being to consider whether there are underlying characteristics of perceptions of studying for GCSE. The relationship between the two sets of factors is then explored and finally consideration is given to the relationship between the factors and attainment at GCSE.

Before presenting the findings, it is worthwhile considering the choice of this analytical technique and to reflect on some of the decisions that are made during the process of carrying out factor analysis. Exploratory factor analysis seeks to describe and summarise data by grouping variables together that are correlated. Variables that are correlated with one another but largely independent of other subsets of variables are combined into factors (Tabachnick and Fidell, 2001). The factors produced are thought to reflect the underlying processes that have created the correlations among the variables. Here, then, the aim was to reduce the large number of observed variables from the questionnaire into a smaller number of factors that reflect the underlying characteristics of perceptions of studying for GCSE in Year 10 and Year 11.

There are two main stages in the process of factor analysis: the first is factor extraction, in which decisions are made about the number of factors underlying the variables from the questionnaire, and the second is factor rotation, in which the factors are statistically manipulated (by rotation) into more interpretable factors (Green et al., 2000). In factor extraction different techniques are possible, but principal components and principal

factors are the most common (Tabachnick and Fidell, 2001). While the decision to adopt either of these techniques is driven by the nature of the research question, in practice the solutions differ very little (Velicer and Jackson, 1990; Fava and Velicer, 1992; Field, 2000). Here, though, principal components was chosen since it affords an empirical study of the data set in contrast to principal factors which requires the research to be designed on the basis of underlying constructs (Tabachnick and Fidell, 2001). Decisions are then required to determine the number of factors to extract. Here two approaches were used: the Kaiser criterion (Kaiser, 1960) in which factors are only retained with an eigenvalue greater than one, and the scree test proposed by Cattell (1966), in which eigenvalues are plotted and those factors before the breaking point of the elbow of the plot retained.

In considering rotation, two broad types of rotation are used: orthogonal and oblique, although most common is orthogonal rotation. Orthogonal factors are uncorrelated. The approach offers ease of interpretation and description of results (Green et al., 2000; Tabachnick and Fidell, 2001). Of the orthogonal techniques available the most commonly used is Varimax (Green et al., 2000), which is a variance maximising procedure: the aim being to maximise the variance of the factor loadings by making higher loadings higher and lower loadings lower for each factor (Tabachnick and Fidell, 2001).

6.2 Underlying characteristics of perceptions of studying in Year 10

An exploratory factor analysis was carried out. All questions from the research instrument were entered as variables to ascertain whether they grouped in a meaningful manner that would enhance understanding of perceptions of studying. In carrying out the initial factor extraction, the method adopted was that of principal components. In addition, two checks were made to assess sampling adequacy. The Kaiser-Meyer-Olkin (KMO) test checks whether the sample is large enough to carry out factor analysis. The sample is adequate if the value returned is greater than 0.5 (Field, 2000); here the value was 0.847. Secondly, an anti-image matrix of covariances and correlations was calculated. If all elements on the diagonal of these matrices are greater than 0.5, then the sample is adequate (Field, 2000): this condition was met.

Three criteria were used to determine the number of factors to rotate: examination of the eigenvalues, the scree test (see appendix 13) and the extent to which the solution was interpretable. The eigenvalues for the four factors were 7, 5.3, 2.2 and 2.1 respectively. Based on this, a Varimax rotation procedure was carried out to yield a four factor solution. The resulting factor scores were saved as variables using the Anderson-Ruben method to enable further analysis. This method ensures that the factor scores are uncorrelated and hence usable in multiple regression analysis. The rotated solution yielded four interpretable factors (see Table 60). These accounted for 23.2% of the variance.

Table 60: Rotated factor loadings for Year 10

	Factor 1	Factor 2	Factor 3	Factor 4
I try to plan my homework so that it is manageable	.61			
I usually plan my revision weeks in advance	.59			
I often go to the library for extra information	.57			
When revising I test myself to check that I understand everything	.55			
If I am unsure about something then I make an effort to improve my understanding	.51			
I go through lots of practice questions and past papers to help prepare for the exams	.5			
I often spend long hours doing coursework because I am anxious for it to be right	-.46			
Often I have to cancel seeing my friends or going out because I have too much work to do	-.46			
When revising I usually test myself to see if I remember things	.45			
I usually make sure that I have everything I need before starting work	.44			
I spend time being critical of my own work since it helps me to produce better work	.42			
I like gathering information from a range of sources and then forming my own opinion	.42			
I always plan what homework I have to complete by the next day	.42			
I tend to make lots of notes about a topic before feeling confident enough to write an essay	-.42			
I try to break my coursework down into small tasks rather than seeing it as a massive project	.41			
I tend to do several drafts of coursework before submitting the final piece of work	.4			
I make sure that I check all my coursework drafts for any mistakes to see if I can improve	.39			
I use different ways of revising	.39			
If I find my work difficult then I look things up in other books	.38			
I usually leave my homework until it absolutely has to be done	.37			-.38
I usually use revision guides to help me prepare for exams	.37			
If I don't feel that the homework is important then I do it in the shortest time possible	.36			
I'm not always sure about what is required for coursework		.56		
I get anxious about coursework		.54		
I feel that there is so much to learn that I find it difficult to know what to revise		.52		
It's difficult to manage the time required for coursework because there is no limit to what could be done		.51		
I usually have to work really hard at the end to complete coursework		.5		
I find it difficult to summarise information		.49		
I find it hard to memorise things		.49		
I find that coursework tends to pile up		.49		
I find it difficult to organise my work so that I have some time to relax each evening		.48		
The amount of homework varies so much that it is difficult to plan my work		.47		
I get anxious about exams because I don't feel that I do my best		.46		

I don't feel confident in assessing whether I know something or not	.46		
Sometimes I have to work really long hours to finish my homework	.44		
Once the exam is over I find that I remember very little	.44		
If I know that I don't understand something then I avoid those questions	.43		
I find it difficult to make notes for revision	.42		
I feel that you get less help from teachers for coursework	.41		
I'm unsure whether my work is any good or not	.4		
I put more effort into coursework than other work		.47	
Wherever I'm working I make sure that I feel comfortable so that I can focus on what I have to do		.47	
I vary the amount of revision I do depending on whether I find the subject easy or difficult		.46	
I often read more about areas that interest me		.42	
I make use of the feedback from teachers since it helps me to improve		.42	
I am aware when I don't understand things		.42	
It's really important to have use of a computer at home for coursework		.42	
I often re-read things if I don't understand the first time		.41	
If I feel unsure about something I ask for help from someone else		.39	
I find it useful to have Internet access for research		.35	
I often work in front of the TV because it prevents me from getting bored			-.52
I usually take regular breaks when doing my homework			.43
Most of the exams are based on the work that I have done during the GCSE course so I don't feel that there is too much to revise			.38
I tend to revise in short bursts because I concentrate better that way			.38
I usually do my homework at school			.35

Note: loadings less than 0.35 have been suppressed.

Factor 1 was characterised by an emphasis on planning and the adoption of specific self-help strategies. Strong perceptions of the importance of planning were evidenced by planning homework so that it was manageable and planning revision weeks in advance. The high loadings for self-help strategies included the use of the library as an additional resource, self-testing strategies when revising and the use of past papers in preparing for examinations. Of note were the negative loadings for three questions: *I often spend long hours doing coursework because I am anxious for it to be right; Often I have to cancel seeing my friends or going out because I have too much work to do* and *I tend to*

make lots of notes about a topic before feeling confident enough to write an essay. All of these suggested an inverse relationship. This factor, named self-management, accounted for 8.1% of the variance.

Factor 2, named anxiety, reflected anxiety and uncertainty about each aspect of the GCSE. Here, the high loadings suggested that there were strong perceptions of being unsure of the requirements of coursework and examinations. Also apparent was a sense of overload, whether in relation to the material that needed to be revised for the examinations or the open-ended nature of coursework. Difficulties were perceived with effort and time management strategies and this factor seemed to indicate a lack of metacognitive awareness. Relevant, too, were the perceived difficulties in assessing whether something was known or the quality of work. This factor accounted for 7% of the variance.

Factor 3 seemed focused on an awareness of wishing to understand, as evidenced by the high loadings for the effort put into coursework and the perception of varying the amount of revision according to subject difficulty. The loading on reading more about areas of interest supported this wish to understand. Hence, feedback from teachers was valued; there was an awareness of asking for help if unsure and a practical valuing of external resources whether in relation to the use of a computer for research or coursework. This factor, understanding, accounted for 4.6% of the variance.

Factor 4 appeared to illustrate an ambivalent experience of studying whereby minimal individual effort was put into completing work. Homework was usually completed in school, regular breaks were taken when working and revision was carried out in short bursts. The perspective that *Most of the exams are based on the work that I have done*

during the GCSE course so I don't feel that there is too much to revise, conveyed a functional perception of studying for GCSE. The high negative loading for *I often work in front of the TV because it prevents me from getting bored* suggested an inverse relationship, although the interpretation required care. In conjunction with the other loadings, here it seemed that work was not often carried out in front of the TV, not due to boredom but because homework was mostly completed in school. This factor, named ambivalence, accounted for 3.5% of the variance.

6.3 Underlying characteristics of perceptions of studying in Year 11

Previous consideration of perceptions of studying in Year 10 and Year 11, outlined in chapters four and five, had suggested that, although they were broadly similar, some differences were apparent between Years 10 and 11 in relation to overall perceptions of examinations, pressure and confidence. Of interest, then, in carrying out the factor analysis of the Year 11 data, was whether the underlying characteristics of perceptions of studying would be similar to those identified in Year 10 or not. As before, an exploratory factor analysis was carried out and two checks made to test for the adequacy of the sample size: both demonstrated that the sample size was sufficient. The value returned for the KMO-test, at 0.833, was greater than the required 0.5 and all diagonals on the anti-image matrix were greater than 0.5. Examination of the scree test (see appendix 13) and the eigenvalues indicated a five factor solution. The eigenvalues for the five factors were 6.4, 5.5, 2.6, 2.4 and 2.1 respectively. A principal components extraction was carried out followed by a Varimax rotation to yield a five-factor solution (see Table 61). Together these factors accounted for 26.6% of the variance. The resulting factor scores were saved as variables using the Anderson-Ruben method to enable further analysis.

Table 61: Rotated factor loadings for Year 11

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
I usually plan my revision weeks in advance	.57				
I often go to the library for extra information	.57				
I try to plan my homework so that it is manageable	.55				
When revising I test myself to check that I understand everything	.54				
I go through lots of practice questions and past papers to help prepare for the exams	.45				
I always plan what homework I have to complete by the next day	.44				
I usually make sure that I have everything I need before starting work	.43				
I like gathering information from a range of sources and then forming my own opinion	.43				
If I am unsure about something then I make an effort to improve my understanding	.43		.35		
When revising I usually test myself to see if I remember things	.42				
I often spend long hours doing coursework because I am anxious for it to be right	-.41				
If I don't feel that the homework is important then I do it in the shortest time possible	.41				
I tend to make lots of notes about a topic before feeling confident enough to write an essay	-.41				
I usually leave my homework until it absolutely has to be done	.4				
I make sure that I check all my coursework drafts for any mistakes to see if I can improve	.39				
Often I have to cancel seeing my friends or going out because I have too much work to do	-.39				
I tend to do several drafts of coursework before submitting the final piece of work	.39				
I use different ways of revising	.38				
I try to break my coursework down into small tasks rather than seeing it as a massive project	.37				
I'm not always sure about what is required for coursework		.58			
I don't feel confident in assessing whether I know something or not		.53			
I get anxious about coursework		.53			
It's difficult to manage the time required for coursework because there is no limit to what could be done		.53			
I find it difficult to summarise information		.52			
I feel that there is so much to learn that I find it difficult to know what to revise		.49			
I find that coursework tends to pile up		.48			
I find it difficult to organise my work so that I have some time to relax each evening		.48			
Once the exam is over I find that I remember very little		.48			
If I know that I don't understand something then I avoid those questions		.47			
I'm unsure whether my work is any good or not		.46			
I get anxious about exams because I don't feel that I do my best		.44			-.45
Sometimes I have to work really long hours to finish my homework		.43			
I find it difficult to make notes for revision		.42			

I find it hard to memorise things	.4			-.41
I usually have to work really hard at the end to complete coursework	.4	-.36		
The amount of homework varies so much that it is difficult to plan my work	.39			
I feel that I have to spend hours rote-learning facts for a lot of the exams	.37			
I am aware when I don't understand things		.47		
I often re-read things if I don't understand the first time		.46		
I vary the amount of revision I do depending on whether I find the subject easy or difficult		.45		
I find it useful to have Internet access for research		.41		
I usually use revision guides to help me prepare for exams		.4		
If I feel unsure about something I ask for help from someone else		.39		
I often read more about areas that interest me		.38		
I make use of the feedback from teachers since it helps me to improve		.38		
It's really important to have use of a computer at home for coursework		.37		
I put more effort into coursework than other work		.37		.35
Most of the exams are based on the work that I have done during the GCSE course so I don't feel that there is too much to revise			.47	
I often work in front of the TV because it prevents me from getting bored			-.47	
I usually take regular breaks when doing my homework			.45	
I usually do my homework at school			.44	
I tend to revise in short bursts because I concentrate better that way			.39	
I find it helpful to work with music playing because it helps me to concentrate			.37	
I prefer exams because you know what you've got to learn				-.52
I find coursework gives you the opportunity to explore your own ideas				.52
I like doing coursework because you can do it in your own time				.52

Note: loadings less than 0.35 have been suppressed.

Factor 1 was characterised by an emphasis on planning and self-help strategies. High loadings demonstrated the importance placed on planning homework and planning revision weeks in advance. Self-help strategies included the use of past papers in preparation for the examinations, self-testing when revising and organising everything necessary for work before beginning. The three negative loadings for *I often spend long hours doing coursework because I am anxious for it to be right, I tend to make lots of notes about a topic before feeling confident enough to write an essay* and *Often I have to cancel seeing my friends or going out because I have too much work to do*, suggested

an inverse relationship. This factor seemed to match the self-management factor that had been identified in the analysis of the Year 10 data (see 6.2). The self-management factor was characterised by an organised, managed perception of studying for GCSE and accounted for 7.4% of the variance.

Factor 2 seemed illustrative of anxiety traits and associated insecurity about the requirements of coursework and examinations. The high loadings suggested strong perceptions of overload in relation to managing the time required for coursework and the volume of material to be revised for the examinations. Apparent, too, was a lack of self-awareness and confidence to be able to assess whether something was known and to assess the quality of work. Perceptions of specific study difficulties also loaded on this factor, including difficulties in summarising information and making notes for revision. This factor appeared to match closely with the anxiety factor identified among the Year 10 cohort (see 6.2) and accounted for 7.1% of the variance.

Factor 3 was characterised by self-awareness, with high loadings for being aware when something was not understood, re-reading for understanding and varying the level of revision according to subject difficulty. It appeared then, that as with factors 1 and 2, factor 3 was broadly similar across both year groups, indicating a quest for understanding (see 6.2). Among the Year 11 pupils, though, the use of revision guides now loaded on this factor, indicating an extension of the use of external resources that was found in Year 10. Of interest was the negative loading for the question *I usually have to work really hard at the end to complete coursework* since it suggested that a positive loading would be gained for not having to work really hard at the end to complete homework. Understanding accounted for 4.9% of the variance.

With regard to Factor 4, the high loading for *Most of the exams are based on the work that I have done during the GCSE course so I don't feel that there is too much to revise* seemed to suggest a functional perspective on studying for GCSE. However, when considering the other loadings on this factor: taking regular breaks, completing homework at school, revising in short bursts and listening to music when working, this seemed to illustrate an ambivalent perception of studying for GCSE, as identified in the Year 10 analysis (see 6.2). As before, there was a negative loading for working in front of the TV. This factor accounted for 3.7% of the variance.

In both the Year 10 and the Year 11 factor analyses, it appeared that factors 1, 2, 3 and 4 were similar. Factor 5 had not been manifest within the factor analysis of the Year 10 data. Among the Year 11 cohort this factor was characterised by a clear preference for coursework since it enabled the time and scope to explore ideas. It was not the case, though, that the preference for coursework was driven by examination anxiety. The negative loadings for the questions *I find it hard to memorise things* and *I get anxious about exams because I don't feel that I do my best* indicated that a positive loading would be obtained for I don't find it hard to memorise things and I don't get anxious about exams. This factor, named wider interest, seemed illustrative of confidence and wider interest. It accounted for 3.4% of the variance.

6.4 Similarity of characteristics of perceptions of studying in Year 10 and Year 11

While multiple regression had been utilised in the analysis earlier (see 4.11.2 and 4.11.3), the limitation posed in that analysis was that it only afforded the exploration of many-to-one relationships. In order to explore the relationship between the two sets of factors from Year 10 and Year 11, a statistical technique was required that enabled the exploration of many-to-many relationships. Hence, the use of canonical correlation to

analyse the relationship between the two sets of variables. Within SPSS canonical correlation is carried out using syntax commands.

The first stage in the canonical correlation was to compute the correlation matrices for both sets of factors individually and then together: these are presented in Table 62.

Table 62: Correlation matrices for the Year 10 factors, the Year 11 factors and between the Year 10 and Year 11 factors

	Year 10 Factor 1	Year 10 Factor 2	Year 10 Factor 3	Year 10 Factor 4
Year 10 factor 1	1.000	-.0063	-.035	-.0221
Year 10 factor 2		1.000	.0001	.0219
Year 10 factor 3			1.000	.0182
Year 10 factor 4				1.000

	Year 11 Factor 1	Year 11 Factor 2	Year 11 Factor 3	Year 11 Factor 4	Year 11 Factor 5
Year 11 factor 1	1.000	.006	-.01	-.0076	-.0318
Year 11 factor 2		1.000	.004	-.0081	-.0075
Year 11 factor 3			1.000	.0145	.0065
Year 11 factor 4				1.000	.0211
Year 11 factor 5					1.000

	Year 11 Factor 1	Year 11 Factor 2	Year 11 Factor 3	Year 11 Factor 4	Year 11 Factor 5
Year 10 factor 1	.5692	.0195	-.0183	.0112	.0397
Year 10 factor 2	-.0018	.4685	-.042	-.0476	.0238
Year 10 factor 3	-.0137	.0101	.4053	-.0814	-.0216
Year 10 factor 4	-.102	-.0202	-.0059	.4454	.1342

As anticipated, each factor had a small correlation with the other factors as the original factor analysis was orthogonal. Of more interest was the correlation matrix for the Year 10 and Year 11 factors. Factors 1 to 4 were moderately correlated across the two year groups. Factor 5, that had been identified within the Year 11 students, lacked a strong correlation with any of the Year 10 factors.

All the Year 10 and 11 factors were entered into the canonical correlation. In carrying out canonical correlation linear combinations of variables, termed canonical variates, are created that represent mathematically viable combinations of variables (Tabachnick and Fidell, 2001). Each pair of canonical variates is interpreted as a pair. The canonical correlations are presented in Table 63 and are interpreted in the same way as Pearson's correlation coefficient. Each of the correlations was regarded as meaningful since, in each instance, the canonical correlation was over .30, corresponding to over 10% of the variance. The squared correlation represents the percentage of the overlapping variance shared on each dimension. Hence, for instance, for the first pair of canonical variates the correlation is .586 and the overlap in variance is 34.3%.

Table 63: Canonical Correlation

	Canonical Correlation	Squared Canonical correlation
1	.586	.343
2	.501	.251
3	.468	.219
4	.368	.135

Note that, given that there were four Year 10 factors, the maximum number of canonical correlations was four. Of importance, though, was how many reliable canonical variates pairs had been generated. Canonical variate pairs are computed in descending

order of magnitude, whereby the first one or two pairs are often reliable and the other pairs not. The test for significance is Wilks' lamda, and here all four canonical correlations achieved significance. The smaller the Wilks' lamda, the more important is the level of significance. Wilks' lamda tests a series of hypotheses that each canonical correlation and all smaller canonical correlations are zero (see Table 64). At each stage the canonical correlate is removed before testing for a reliable relationship between the remaining sets of variables.

Table 64: Significance levels for the canonical correlations

	Wilks' Lamda	Chi-Square	df	Significance
1	.332	703.483	20	<.001
2	.506	434.797	12	<.001
3	.675	250.613	6	<.001
4	.865	92.724	2	<.001

In order to interpret each canonical variate, loading matrices are examined to consider the patterns of variables that are highly correlated (loaded) with it. The loading matrices contain correlations and hence loadings below 0.3 are not interpreted as part of the variate since they are not considered important.

The pattern of loading was similar for each pair of Year 10 and 11 factors, with the exception of Year 11 factor 5 since this was a new factor in Year 11 (see Table 65). Reading down the columns across the sets of variates suggested the following.

In the first pair of canonical variates, low scores on self-management factors (factor 1) in Year 10 were linked with low scores on self-management factors (factor 1) in Year

11. Hence low self-management in Year 10 was associated with low self-management in Year 11.

Table 65: Loading Matrix for Year 10 and 11 factors

		Canonical Variates			
	Variable sets	First	Second	Third	Fourth
First	Year 10 factor 1	-.92	.377	.01	.109
	Year 10 factor 2	-.153	-.484	.823	.254
	Year 10 factor 3	-.035	-.393	-.479	.785
	Year 10 factor 4	.368	.668	.314	.566
Second	Year 11 factor 1	-.948	.298	-.049	.049
	Year 11 factor 2	-.177	-.486	.794	.308
	Year 11 factor 3	-.014	-.297	-.497	.815
	Year 11 factor 4	.275	.737	.291	.466
	Year 11 factor 5	.015	.209	.152	.186

For the second variate pair, high scores on the ambivalence factor (factor 4) in Year 10 were associated with high scores on the ambivalence factor (factor 4) in Year 11. In the third variate, high anxiety factor scores (factor 2) in Year 10 were associated with high scores on the anxiety factor within Year 11. Finally, the fourth variate suggested that high understanding factor scores (factor 3) in Year 10 were associated with high understanding factor scores (factor 3) in Year 11. The Year 11 factor five appeared not to be associated with the Year 10 factors, given the small loadings, less than 0.3, on each of the Year 10 factors.

Given that the canonical correlations were significant, the next consideration was the amount of variance accounted for. The first step was to assess the variance that a canonical variate extracts from its own set of variables. In summing the Year 10 variates almost 100% of the variance was extracted by the four canonical variates (see

Table 66). This was anticipated since the number of factors was equal to the number of canonical variates.

Table 66: Canonical Redundancy Analysis: Year 10 variables

	Standardised variance of the Year 10 variables explained by				
	Their Own Canonical Variables			The Opposite Canonical Variables	
	Proportion	Cumulative Proportion	Canonical R-Squared	Proportion	Cumulative Proportion
1	.252	.252	.343	.086	.086
2	.244	.496	.251	.061	.147
3	.251	.747	.219	.055	.202
4	.253	1.00	.135	.034	.236

In summing the Year 11 variates over 80% of the variance was extracted by the four canonical variates. Given that there are more factors in Year 11 than canonical variates this also was anticipated (see Table 67).

Table 67: Canonical Redundancy Analysis: Year 11 variables

	Standardised variance of the Year 11 variables explained by				
	Their Own Canonical Variables			The Opposite Canonical Variables	
	Proportion	Cumulative Proportion	Canonical R-Squared	Proportion	Cumulative Proportion
1	.201	.201	.343	.069	.069
2	.2	.401	.251	.05	.119
3	.198	.599	.219	.043	.162
4	.203	.802	.135	.027	.189

The final consideration was that of redundancy: the variance a variate from one set extracts from the variables in other set (Tabachnick and Fidell, 2001), i.e. the variance a variate from the Year 10 set extracted from the variables in the Year 11 set. The four

factors initially established within the Year 10 data accounted for 23.2% of the variance (see 6.2). Here the factorised canonical correlation analysis showed that the Year 11 set accounted for 23.6% of the variation in the Year 10 set. With regard to Year 11, the initial five factors accounted for 26.6% of the variance in the Year 11 data (see 6.3). The redundancy analysis showed that the Year 10 set accounted for 18.9% of the variation in the Year 11 set. Given the introduction of a new factor in Year 11, this reduced proportion was not unanticipated.

In carrying out the canonical correlation the aim had been to establish whether the same set of underlying factors that accounted for the variation within Year 10 or Year 11 were also important for determining relationships within the opposite year group. This based on the premise that had the factorised canonical correlation shown, for instance, that the Year 11 set accounted for most of the variation within the Year 10 set and the Year 11 factors had explained most of the variance within the Year 11 data, then it would appear that the same set of underlying factors were present and regarded as important in accounting for the variation within the Year 11 set and in determining the relationships across the Year 10 and 11 variable sets (Dunteman, 1989). In practice, the rotated factor solutions in Year 11 and Year 10 explained small proportions of the variance and hence it was unlikely that the relationship between the factors could be shown statistically. What was apparent was that factors one, two, three and four loaded in similar ways in both years across the four canonical variates.

6.5 The relationship between characteristics of perceptions of studying and attainment

6.5.1 Year 10

To explore the impact of the different factors on attainment, a multiple regression was carried out with average GCSE point score as the dependent variable. From this point

forward the enter procedure was used for all multiple regressions, given that stepwise procedures may overfit data (Tabachnick and Fidell, 2001). The four factors identified in the Year 10 analysis were entered into the model. The relationship revealed between the factors and average GCSE point score was significant: Multiple R of .562, $R^2 = .315$ ($F(4, 851) = 98.024$, $p < .001$). The adjusted R Square indicated that the model accounted for 31.2% of the variance.

Two of the four factors entered into the model were strongly related to the average GCSE point score (see Table 68). These were ambivalence and understanding. The ambivalence factor, which made the greatest contribution, had a negative beta weight indicating a negative relationship with average GCSE point score. This implied that an increase in the ambivalence factor gave rise to a decrease in average GCSE point score. Understanding had a positive beta weight indicating that an increase in the understanding factor gave rise to an increase in average GSCE point score.

Table 68: Year 10 multiple regression to assess the contribution made by the different factors to average GCSE point score

Variable	Beta weight	t	Significance
Ambivalence factor	-.466	-16.424	<.001
Understanding factor	.319	11.229	<.001
Self-management factor	-.018	-.632	.528
Anxiety factor	-.004	-.133	.894

The strength of the relationship of the factors to average GCSE point score was supported by the bivariate and partial correlations (see Table 69).

Table 69: Year 10 bivariate and partial correlations of the predictors with average GCSE point score

	Correlation between each factor and average GCSE point score	Correlation between each factor and average GCSE point score controlling for all other factors
Ambivalence factor	-.462*	-.491*
Understanding factor	.313*	.359*
Self-management factor	-.02	-.022
Anxiety factor	-.004	-.005

*p < .001

Given the significant weighting of the reported homework hours completed each week found in the regression carried out with Year 10 pupils in predicting average GCSE point scores (see 4.11.2), it seemed worthwhile exploring the predictive relationship between the factors and reported homework hours. Hence a multiple regression was carried out with homework hours completed each week as the dependent variable and the factor scores entered into the model. The relationship between the factors and hours homework reported each week was significant: Multiple R of .371, R^2 = .138 (F (4, 720) = 28.755, p < .001). The adjusted R Square indicated that the model accounted for 13.3% of the variance.

Table 70: Year 10 predictors of reported homework hours each week by the different factors

Variable	Beta weight	t	Significance
Ambivalence factor	-.248	-7.17	<.001
Self-management factor	.198	5.732	<.001
Understanding factor	.198	5.708	<.001
Anxiety factor	-.03	-.875	.382

Three factors: ambivalence, self-management and understanding, were significantly related to the amount of homework hours reported each week (see Table 70). All

factors made an important contribution. The beta weights indicated a negative relationship with ambivalence and reported homework completed, but a positive relationship with self-management and understanding. An increase in the ambivalence factor leads to a decrease in reported homework hours, whereas an increase in the self-management and understanding factors leads to an increase in reported homework hours.

The strength of the relationships was confirmed by the bivariate correlations for ambivalence, self-management and understanding with reported homework hours each week. These held when carrying out partial correlations while controlling for the other factors (see Table 71).

Table 71: Year 10 bivariate and partial correlations of the predictors with reported homework hours each week

	Correlation between each factor and reported homework hours each week	Correlation between each factor and reported homework hours while controlling for the other factors
Ambivalence factor	-.245*	-.258*
Self-management factor	.196*	.209*
Understanding factor	.187*	.208*
Anxiety factor	-.03	-.033

*p < .001

Finally, a multiple regression was carried out with average GCSE point score as the dependent variable and the four factors, average SATs score and reported homework hours completed as the predictors. The relationship was significant: Multiple R of .854, $R^2 = .73$ ($F (6, 692) = 311.199$, $p < .001$). The adjusted R Square indicated that the model accounted for 72.7% of the variance.

As anticipated, average SATs score made the greatest contribution. However, the two factors ambivalence and understanding, together with the reported homework hours, also made a significant contribution (see Table 72).

Table 72: Year 10 multiple regression to assess the contribution made by the different factors, reported homework hours completed and SATs to average GCSE point score

Variable	Beta weight	t	Significance
Average SATs score	.749	33.216	<.001
Ambivalence factor	-.14	-6.388	<.001
Understanding factor	.096	4.583	<.001
Reported homework hours	.052	2.439	.015
Self-management factor	.015	.727	.467
Anxiety factor	-.008	-.406	.685

As before, the beta weights indicated a negative relationship with ambivalence and average GCSE point score but a positive relationship with understanding. An increase in the ambivalence factor leads to a decrease in average GCSE point score, whereas an increase in the understanding factor leads to an increase in average GCSE point score. The amount of homework that pupils reported completing also had a positive relationship with average GCSE point score.

The relationships held when carrying out partial correlations while controlling for the other factors. Bivariate and partial correlations are reported in see Table 73.

Table 73: Year 10 bivariate and partial correlations of the different factors, reported homework hours completed and SATs with average GCSE point score

	Correlation between each factor, SATs and homework hours with average GCSE point score	Correlation between each factor, SATs and homework hours and average GCSE points score while controlling for the other factors
Average SATS score	.846**	.784**
Ambivalence factor	-.462**	-.236**
Understanding factor	.313**	.172**
Reported homework hours	.288**	.092*
Self-management factor	-.02	.028
Anxiety factor	-.004	-.015

*p<.05 **p < .001

6.5.2 Year 11

To explore the impact of the different factors on attainment a regression was carried out with average GCSE point score as the dependent variable. The five factors identified with the Year 11 analysis were entered into the model following the enter procedure. The relationship revealed between the factors and average GCSE point score was significant: Multiple R of .498, $R^2 = .25$ ($F(5, 816) = 53.933$, $p < .001$). The adjusted R Square indicated that the model accounted for 24.4% of the variance.

Table 74: Year 11 multiple regression to assess the contribution made by the different factors to average GCSE point score

Variable	Beta weight	t	Significance
Ambivalence factor	-.396	-13.036	<.001
Understanding factor	.254	8.38	<.001
Wider interest factor	-.132	-4.363	<.001
Anxiety factor	.098	3.221	.001
Self-management factor	.005	.149	.882

Four of the five factors were strongly related to the average GCSE point score (see Table 74). These were ambivalence, understanding, wider interest and anxiety. The ambivalence factor, which made the greatest contribution, had a negative beta weight indicating a negative relationship with average GCSE point score. This implies that an increase in the ambivalence factor gives rise to a decrease in average GCSE point score. The wider interest factor also had a negative beta weight indicating a negative relationship with average GCSE point score. Understanding and anxiety had positive beta weights implying that an increase in either of these factors leads to an increase in average GCSE point score.

Table 75: Year 11 bivariate and partial correlations of the predictors with average GCSE point score

	Correlation between each factor and average GCSE point score	Correlation between each factor and average GCSE point score controlling for all other factors
Ambivalence factor	-.396**	-.415**
Understanding factor	.254**	.282**
Wider interest factor	-.133**	-.151**
Anxiety factor	.097*	.112*
Self-management factor	.005	.005

*p < .01, **p < .001

The strength of the relationship of the factors to average GCSE point score was supported by the bivariate and partial correlations (see Table 75).

As before, the predictive relationship between the factors and reported homework hours were explored. A regression was carried out with homework hours completed each week as the dependent variable and the factor scores entered into the model following the enter method. The relationship between the factors and hours homework reported

each week was significant: Multiple R of .279, R^2 = .078 (F (5, 701) = 11.845, p < .001). The adjusted R Square indicated that the model accounted for 7.1% of the variance.

Table 76: Year 11 predictors of reported homework hours each week by the different factors

Variable	Beta weight	t	Significance
Ambivalence factor	-.198	-5.444	<.001
Self-management factor	.164	4.519	<.001
Understanding factor	.085	2.344	= .019
Anxiety factor	-.014	-.393	.694
Wider interest factor	.043	1.192	.234

Three factors: ambivalence, self-management and understanding, were significantly related to the amount of homework hours reported each week (see Table 76). Of these ambivalence and self-management made the greatest contribution. The beta weights indicated a negative relationship with ambivalence and homework completed but a positive relationship with self-management. An increase in the ambivalence factor led to a decrease in reported homework hours, whereas an increase in the self-management factor led to an increase in reported homework hours.

The strength of the relationships was confirmed by the bivariate correlations for ambivalence, self-management and understanding with reported homework hours each week. These held when carrying out partial correlations while controlling for the other factors (see Table 77).

Table 77: Year 11 bivariate and partial correlations of the predictors with reported homework hours each week

	Correlation between each factor and reported homework hours each week	Correlation between each factor and reported homework hours while controlling for the other factors
Ambivalence factor	-.202**	-.201**
Self-management factor	.171**	.168**
Understanding factor	.09*	.088*
Anxiety factor	-.023	-.015
Wider interest factor	.046	.045

*p < .05, **p < .001

Finally, a multiple regression was carried out with average GCSE point score as the dependent variable and the five factors, average SATs score and reported homework hours completed as the predictors. The relationship was significant: Multiple R of .843, $R^2 = .71$ ($F(7, 687) = 240.207$, $p < .001$). The adjusted R Square indicated that the model accounted for 70.7% of the variance.

Table 78: Year 11 multiple regression to assess the contribution made by the different factors, reported homework hours completed and SATs to average GCSE point score

Variable	Beta weight	t	Significance
Average SATs score	.755	33.073	<.001
Ambivalence factor	-.14	-6.379	<.001
Understanding factor	.079	3.789	<.001
Self-management factor	.071	3.352	=.001
Anxiety factor	.047	2.25	.025
Reported homework hours	.042	1.909	.057
Wider interest	-.028	-1.322	.183

As anticipated, average SATs score made the greatest contribution to the model. However, the four factors ambivalence, understanding, self-management and anxiety also made a significant contribution (see Table 78). As before, the beta weights indicated a negative relationship with ambivalence and average GCSE points score but a positive relationship with understanding.

An increase in the ambivalence factor leads to a decrease in average GCSE point score, whereas an increase in the understanding factor leads to an increase in average GCSE point score. Unlike the Year 10 cohort, the self-management factor and anxiety factor also gave a significant result whereby an increase in either factor leads to an increase in average GCSE points score. By contrast to Year 10, the amount of homework that pupils reported completing did not have a significant relationship with average GCSE point score.

Table 79: Year 11 bivariate and partial correlations of the different factors, reported homework hours completed and SATs with average GCSE point score

	Correlation between each factor, SATs and homework hours with average GCSE point score	Correlation between each factor, SATs and homework hours and average GCSE points score while controlling for the other factors
Average SATS score	.847**	.784**
Ambivalence factor	-.396**	-.237**
Understanding factor	.254**	.143**
Reported homework hours	.264**	.073
Self-management factor	.005	.127**
Anxiety factor	.097*	.086*
Wider interest factor	-.133**	-.051

*p<.05, **p < .001

The bivariate and partial correlations are reported in Table 79. The strength of the relationships was confirmed by the bivariate and partial correlations for average SATs score, ambivalence, anxiety and understanding with average GCSE point score. This was the case with self-management. There was a significant positive partial correlation between the self-management factor and average GCSE point score in the absence of a significant bivariate correlation. This suggested that homework and self-management were closely related and that there may be some trade-off between the two. In Year 11 pupils had reported completing more homework than in Year 10; the difference was statistically significant; there was also less variation in the amount of homework completed in Year 11 (see 5.4).

6.6 Summary of key findings

Factor analysis of the questionnaire data led to a four factor solution for Year 10 and a five factor solution in Year 11. It appeared that four factors were common to both year groups: these were understanding, ambivalence, anxiety and self-management. An additional factor, wider interest, was established within Year 11. The predictive relationship between the factors, SATs results and reported homework hours and attainment at GCSE was explored in a series of multiple regression analyses. For both year groups, the understanding factor was positively associated with attainment at GCSE, in contrast to the ambivalence factor which was negatively associated with attainment at GCSE.

CHAPTER SEVEN: PERCEPTIONS OF STUDYING: STUDENT TYPOLOGIES

7.1 Introduction

In the previous chapter the technique of factor analysis was used to explore underlying perceptions of studying for GCSE. An alternative, yet complementary, approach for analysing the student responses is cluster analysis, which, rather than establishing groupings of variables as in the factor analysis, would enable students to be classified into different groups based on different metacognitive, effort and time management strategies, task value and self-regulatory strategies. This approach had been adopted in previous studies that had sought to explore the educational experiences of students (see Entwistle and Wilson, 1977; Youngman, 1978; 1983; Pintrich, 1989). The value of cluster analysis is that the final clusters relate to students rather than dimensions of studying, and they retain full information about the links between the variables described above, which are lost in the process of factor analysis (Entwistle, 1998).

In broad terms cluster analysis is a multivariate technique for detecting natural groupings of data whereby an attempt is made to organise information about variables so that relatively homogeneous groups, termed clusters, can be formed. The first stage involves the generation of a similarity or distance matrix followed by a decision about the numbers of clusters and their interpretation. Lastly, and most importantly, the cluster solution must be validated (Everitt et al., 2001). To assess the efficiency of the cluster solution, discriminant analysis was used to predict membership of the clusters (Richardson, 1997).

Although a variety of cluster techniques exist, here an optimisation technique, k-means cluster analysis, was deemed more appropriate than a hierarchical analysis since with

hierarchical methods, whether divisive or agglomerative, once individuals have been split or joined by the algorithm this cannot be undone (Everitt et al., 2001). As Kaufman and Rousseeuw (1990) suggested, hierarchical methods suffer from the flaw that they can never repair what was done in previous steps. In addition, hierarchical techniques may only be used for samples less than 200.

All clustering techniques compute a distance matrix: a table in which both the rows and columns are units of analysis and the cell entries are a measure of similarity or distance for any pair of cases. In essence these identify how 'close' or far apart individuals are. K-means cluster analysis uses Euclidean distance, which is the most common distance measure (Everitt et al., 2001). Initial cluster centres are chosen on a first pass of the data, then each additional iteration groups observations based on the nearest Euclidean distance to the mean of the cluster. Cluster centres therefore change at each pass and the process continues until cluster means do not shift.

7.2 Student typologies in Year 10

A k-means cluster analysis was carried out in order to identify a set of pupil groups, indicative of different perceptions of studying, among the Year 10 students. This approach sought both to minimise within-group variation and maximise between-group variation. All items within the questionnaire were entered into the model. Cluster solutions of five, four, three or two groups of students were rejected in favour of a six cluster solution. Here the Year 10 students, when classified according to cluster group, generated broadly similar group sizes (see Table 80). It was felt that this solution was most effective in distinguishing between the students in relation to their perceptions of studying for GCSE. The cluster number of each case and the distance of each case from the classification cluster centre were saved as variables for use in further analysis.

Table 80: Number of Year 10 students classified within each cluster

Cluster	N = 892
1	129
2	120
3	161
4	167
5	182
6	133

In considering each cluster importance lay in exploring those questions that were contributing most to the differences in cluster membership. As part of the cluster technique analysis of variance F statistics were requested. While these statistics are opportunistic, since the procedure looks to form groups that differ, the relative size of the statistics provided information about each variable's contribution to the separation of the groups. Hence high values of F suggested that certain questions made a greater contribution than others (see appendix 14). Table 81 shows the final Year 10 cluster centres mean values for the questions that contributed most to differences in cluster membership (those with a value of F greater than 35). A complete table showing the mean values for all questions for each cluster appears in appendix 15. As before, the five-point rating scale adopted in the questionnaire meant that 1 indicated a low score and 5 a high score.

Perceptions of studying that contributed most to differences in the cluster membership included aspects of planning in relation to coursework, homework and examinations. Also important were specific techniques such as checking for understanding when revising or to improve coursework and anxiety concerns in relation to time management and uncertainty. Each cluster was named on the basis of these data.

Table 81: Year 10: final cluster centres mean values for the questions that contributed most to differences in cluster membership

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Year 10
I try to plan my homework so that it is manageable	3.26	2.24	2.2	3.66	3.32	3.9	3.12
I usually plan my revision weeks in advance	2.74	1.98	1.83	3.24	2.57	3.23	2.6
I often spend long hours doing coursework because I am anxious for it to be right (R)	2.68	2.88	3.56	1.96	2.21	2.29	2.58
I try to break my coursework down into small tasks rather than seeing it as a massive project	3.77	2.48	2.73	3.87	2.94	3.71	3.25
I go through lots of practice questions and past papers to help prepare for the exams	3.34	2.52	2.27	3.64	3.27	3.84	3.15
When revising I test myself to check that I understand everything	3.32	3.21	2.54	4.07	3.84	4.29	3.55
I find it hard to memorise things (R)	2.34	2.25	3.05	2.16	3.14	3.73	2.79
I find that coursework tends to pile up (R)	2.22	1.85	2.47	1.83	2.71	3.38	2.41
I find it difficult to organise my work so that I have some time to relax each evening (R)	2.53	2.08	3.09	2.03	2.88	3.69	2.72
I make sure that I check all my coursework drafts for any mistakes to see if I can improve	3.48	3.53	3.1	4.31	3.95	4.3	3.79
I usually have to work really hard at the end to complete coursework (R)	2.4	1.77	2.84	1.72	2.58	3.3	2.44
I usually leave my homework until it absolutely has to be done (R)	2.64	2.03	2.57	2.81	3.76	3.92	3
I get anxious about coursework (R)	2.71	2.33	3.3	1.73	2.49	3.37	2.63
When revising I usually test myself to see if I remember things	3.38	3.33	2.73	4.19	3.78	4.19	3.61
If I know that I don't understand something then I avoid those questions (R)	2.6	2.5	2.98	2.58	3.49	3.95	3.03
If I am unsure about something then I make an effort to improve my understanding	3.74	3.47	2.85	4.13	3.8	4.22	3.7
The amount of homework varies so much that it is difficult to plan my work (R)	2.57	1.93	3.02	1.68	2.19	3.12	2.4
I feel that there is so much to learn that I find it difficult to know what to revise (R)	2.39	1.81	2.75	1.63	2.23	3.07	2.3
I always plan what homework I have to complete by the next day	3.21	2.52	2.66	4	3.55	3.87	3.33

Note: R indicates that the scores were reversed.

Cluster 1: Not overly anxious but lacking positive interest in checking and revising

Cluster 1 gained no high mean scores, as indicated by a mean of over 4, for any of the most discriminating questions. Neither, though, did they gain any particularly low scores as indicated by a mean of below 2. This suggested that there was a lack of strong

positive or negative perceptions of studying. In relation to the other cluster groups, coursework drafts were less likely to be checked in order to improve, homework more likely to be left until it had to be done and there was more avoidance of questions when unsure of understanding.

Cluster 2: Lack of planning and time management and relatively little effort

Students within this cluster gained no mean scores over 4; however, there were five mean scores below 2. It appeared that within this cluster there was a perception that coursework piled up; there were difficulties in knowing what to revise and the variability of homework made it difficult to plan. Students, though, made little attempt to manage their revision in relation to planning and perceived that they had to work really hard at the end to complete coursework. Some basic strategies in relation to breaking coursework down into smaller tasks were less evident in comparison to the other groups.

Cluster 3: Poor students: disengaged and lacking interest

Cluster 3 appeared less anxious than the other clusters in relation to the mean scores gained for perceived anxiety about coursework and homework. The scores for these questions had been reversed and hence the higher means obtained by cluster 3 indicated less anxiety. There was little evidence of engaging in active strategies and students were less likely to plan revision in advance, make use of practice papers, and make an effort to improve understanding or test themselves when revising in comparison to other groups. They were also less likely to check coursework drafts to see if they could improve.

Cluster 4: Hard working students but with high anxiety

Cluster 4 were characterised by the adoption of many positive strategies as part of their GCSE studies as evidenced by the high number of mean scores over 4. In addition to a pro-active use of checking for understanding in relation to examinations and coursework, homework was planned for the next day and effort put into understanding. There were, though, many areas of anxiety as evidenced by the low mean scores associated with the volume of material to be revised and concern about the variability of homework making it difficult to plan. There were specific concerns relating to perceptions of coursework, including uncertainty about the requirements, anxiety and having to work long hours.

Cluster 5: Hard working students with a balanced perception of studying characterised by the use of effective strategies

As with cluster 1, there were relatively few high or particularly low mean scores within this cluster; however, the cluster was quite distinctive. Cluster 5 appeared to have a positive perception of studying for GCSE with a range of clear strategies that were used effectively. Hence memorising things was not seen as particularly difficult, homework was not left until the last minute, coursework drafts were checked and different revision strategies were in place. There were some hints of anxiety but these did not appear to be overwhelming.

Cluster 6: Self-aware but possibly over confident

Positive strategies were in evidence in relation to checking understanding when revising, checking coursework drafts, testing oneself when revising and making an effort to improve understanding. Planning homework was perceived to be important and coursework, in comparison to the other cluster groups, was less likely to be viewed

as a source of anxiety. Interestingly, this group were the least likely to avoid a question if they did not understand. No mean scores fell below 2 as indicative of poor perceptions of studying for GCSE.

As outlined earlier (see 7.1) one aspect of cluster analysis is the examination of the Euclidean distances between the final cluster centres since this enables consideration of where differences and similarities lie between the groups. Here, Year 10 cluster 6 was notably different from cluster groups 1 to 4, although shared some similarity with cluster 5 (see Table 82). Cluster 3 was most different to clusters 4 and 6 although it shared some similarities with clusters 1, 2 and 5.

Table 82: Euclidean distances between the final Year 10 cluster centres

Cluster	1	2	3	4	5	6
1		4.001	4.889	4.725	4.297	6.007
2	4.001		5.315	5.219	4.775	7.869
3	4.889	5.315		8.664	5.256	7.514
4	4.725	5.219	8.664		5.381	6.904
5	4.297	4.775	5.256	5.381		4.515
6	6.007	7.869	7.514	6.904	4.515	

In order to validate the cluster analysis, discriminant analysis was carried out on membership or non-membership of each cluster to assess the efficiency of the computer-generated cluster groups. It was intended that this would further clarify the cluster relationships. Discriminant analysis is used to classify individuals into groups on the basis of quantitative predictor variables (Green et al., 2000) and to find classification functions to predict group membership. Here then the cluster analysis derived classes

formed the groups for analysis with the original questionnaire data. Given that the dependent variable, cluster group, had six groups, the number of discriminant functions was computed as five.

Table 83: Significance tests for Year 10 discriminant analysis

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 5	0.032	2940.26	355	< 0.001
2 through 5	0.119	1813.29	280	< 0.001
3 through 5	0.339	922.28	207	< 0.001
4 through 5	0.63	394.4	136	< 0.001
5	0.864	124.57	67	< 0.001

Table 83 shows the 'peel off' significance tests of the successive discriminant functions. In discriminant analysis, as with canonical correlation (see 6.4), the first discriminant function provides the best separation between the groups as evidenced by the smallest value for Wilks' lambda. For the combination of the five discriminant functions, 1 through 5, Wilks' lambda was significant indicating that there are differences among groups across the six cluster groups. After each function is removed all remaining tests were still statistically significant. This indicated that all cluster groups differentiated significantly after partialling out the effects of each discriminant function in order. Hence it would be possible to interpret each discriminant function.

The first discriminant function accounted for 46% of the variance in the solution and the second 30.8% (see Table 84). The values of eta square indicate how much of the variability of scores for each discriminant function is accounted for by differences among the cluster groups. Here 73% of the variability of the scores for the first discriminant function was accounted for by differences among the six cluster groups.

Table 84: Eigenvalues and eta square for Year 10 discriminant analysis

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation	Eta square
1	2.751	46	46	0.856	0.73
2	1.844	30.8	76.8	0.805	0.65
3	0.857	14.3	91.1	0.679	0.46
4	0.372	6.2	97.4	0.521	0.27
5	0.157	2.6	100	0.369	0.14

In order to consider the meaning of each discriminant function, correlation coefficients for the discriminant functions were explored (Green et al., 2000). For ease of interpretation, only those questions with a correlation of more than 0.2 are reported in Table 85 since variables that correlate below 0.2 with a function have only a weak association with it (Hedderson, 1991). The full table of correlation coefficients for the discriminant functions appears in appendix 16.

Table 85: Structure matrix for Year 10 discriminant analysis

	Function				
	1	2	3	4	5
When revising I test myself to check that I understand everything	0.292(*)	0.222	-0.084	0.048	-0.107
I try to plan my homework so that it is manageable	0.277(*)	0.274	0.123	-0.147	-0.072
I often spend long hours doing coursework because I am anxious for it to be right (R)	-0.275(*)	-0.108	0.084	0.128	0.123
When revising I usually test myself to see if I remember things	0.272(*)	0.16	-0.057	0.055	0.009
If I am unsure about something then I make an effort to improve my understanding	0.272(*)	0.155	0.026	0.059	-0.216
Often I have to cancel seeing my friends or going out because I have too much work to do (R)	-0.251(*)	-0.029	0.048	0.021	-0.096
I usually plan my revision weeks in advance	0.249(*)	0.171	0.15	-0.026	0.061
If I find my work difficult then I look things up in other books	0.244(*)	0.085	0.019	-0.04	-0.066
I go through lots of practice questions and past papers to help prepare for the exams	0.242(*)	0.204	0.112	-0.061	-0.135
Wherever I'm working I make sure that I feel comfortable so that I can focus on what I have to do	0.237(*)	0.076	-0.093	0.172	-0.128
If I feel unsure about something I ask for help from someone else	0.234(*)	0.058	-0.147	0.147	-0.128
I make sure that I check all my coursework drafts for any mistakes to see if I can improve	0.233(*)	0.151	-0.076	0.048	0.119
I get anxious about coursework (R)	-0.231(*)	0.207	0.109	0.186	-0.075
I spend time being critical of my own work since it helps me to produce better work	0.229(*)	0.072	0.105	-0.08	0.141
I always plan what homework I have to complete by the next day	0.229(*)	0.193	0.043	-0.174	0.218
I like gathering information from a range of sources and then forming my own opinion	0.224(*)	0.09	0.036	0.004	0.184
I usually make sure that I have everything I need before starting work	0.216(*)	0.12	0.12	0.059	0.046
I feel that I have to spend hours rote-learning facts for a lot of the exams (R)	-0.211(*)	0.11	-0.067	-0.12	-0.005
I make use of the feedback from teachers since it helps me to improve	0.211(*)	0.137	-0.131	0.085	-0.175
I tend to make lots of notes about a topic before feeling confident enough to write an essay (R)	-0.206(*)	-0.056	-0.186	-0.108	-0.138
If my work isn't going well then I find it helpful to change to another task for a while and then go back	0.202(*)	-0.146	-0.009	0.052	0.059
Sometimes I have to work really long hours to finish my homework (R)	-0.202(*)	0.13	0.179	0.191	0.08
I usually leave my homework until it absolutely has to be done (R)	0.07	0.372(*)	-0.144	-0.23	-0.086
I find that coursework tends to pile up (R)	-0.074	0.32(*)	-0.039	0.051	-0.128
If I know that I don't understand something then I avoid those questions (R)	-0.035	0.313(*)	-0.138	0.018	-0.042
I find it difficult to organise my work so that I have some time to relax each evening (R)	-0.137	0.309(*)	0.018	0.068	0.021
I find it hard to memorise things (R)	-0.105	0.297(*)	-0.102	0.052	0.044
I usually have to work really hard at the end to complete coursework (R)	-0.153	0.296(*)	0.061	0.018	-0.037

I'm not always sure about what is required for coursework (R)	-0.074	0.29(*)	0.085	0.094	-0.194
I find it difficult to summarise information (R)	-0.1	0.273(*)	-0.043	0.189	-0.006
I find it difficult to make notes for revision (R)	-0.062	0.266(*)	-0.012	0.04	-0.185
I don't feel confident in assessing whether I know something or not (R)	-0.108	0.258(*)	-0.053	-0.074	-0.109
I feel that there is so much to learn that I find it difficult to know what to revise (R)	-0.174	0.253(*)	0.135	0.114	-0.037
Once the exam is over I find that I remember very little (R)	-0.094	0.249(*)	0.041	0.131	-0.036
The amount of homework varies so much that it is difficult to plan my work (R)	-0.216	0.227(*)	0.198	0.146	0.008
It's difficult to manage the time required for coursework because there is no limit to what could be done (R)	-0.183	0.226(*)	-0.006	0.105	0.157
I get anxious about exams because I don't feel that I do my best (R)	-0.188	0.222(*)	0.05	-0.072	0.04
If I don't feel that the homework is important then I do it in the shortest time possible (R)	0.078	0.204(*)	-0.086	-0.011	0.07
When given lesson time for coursework I prefer to chat with my friends and then work at home (R)	0.01	0.201(*)	0.17	0.063	0.016
I often work in front of the TV because it prevents me from getting bored (R)	0.064	0.183	-0.339(*)	0.027	0.113
I try to break my coursework down into small tasks rather than seeing it as a massive project	0.188	0.112	0.325(*)	-0.078	0.092
I usually do my homework at school	-0.002	-0.111	0.213(*)	0.131	-0.106
I am aware when I don't understand things	0.137	0.019	-0.21(*)	0.15	-0.026
I usually take regular breaks when doing my homework	0.104	-0.098	0.209	0.335(*)	-0.115
I usually use revision guides to help me prepare for exams	0.192	0.108	-0.106	0.292(*)	0.146
I find websites (e.g. BBC Bitesize) helpful when revising for exams	0.189	0.037	0.065	0.253(*)	0.145
I know what I need to do to get a good mark	0.1	0.148	-0.012	0.236(*)	-0.021
I tend to revise in short bursts because I concentrate better that way	0.128	-0.071	0.193	0.230(*)	0.021
I tend to do several drafts of coursework before submitting the final piece of work	0.156	0.134	0.114	-0.078	0.298(*)
I feel that you get less help from teachers for coursework (R)	-0.05	0.226	-0.076	-0.006	-0.281(*)
I often go to the library for extra information	0.182	0.15	0.205	0.084	0.221(*)
I find coursework gives you the opportunity to explore your own ideas	0.153	0.049	0.129	0.154	-0.204(*)

Note: * indicates the largest absolute correlation between each variable and discriminant function, R indicates that the scores were reversed.

Function 1, named self-help, seemed indicative of self-directed help and planning in relation to examinations, coursework and homework. Strategies adopted included testing and checking when revising, the use of practice papers and looking things up in books if unsure. Effort was valued as a means to improve understanding and there was an emphasis on planning so that aspects of the GCSE were manageable.

Function 2, named anxiety, was characterised by anxiety and poor metacognitive awareness as indicated by the lack of self-help strategies. Homework was left until it had to be done; coursework was perceived to pile up and questions were avoided if it was perceived that they were not understood. There were perceived difficulties with memorising things, summarising information, and making notes for revision. There was also a lack of understanding of the requirements for coursework or examinations.

Within function 3, while breaking coursework down into smaller tasks might appear a useful strategy, that most homework was completed at school seemed to suggest that students took the easiest route possible, indicative of a lack of caring. The negative correlation for being aware of not understanding suggested an inverse relationship and supported an ambivalent perception of studying. This function was named ambivalence.

Function 4, named positive examination perception, indicated a positive examination strand in relation to the use of external sources of information to assist with revising. There was a positive correlation with knowing what was required to gain a good mark, taking regular breaks when working, the use of revision guides and practice papers and revising in short bursts as an aid to concentration.

Function 5 suggested a specific coursework strand; however, the perception of coursework seemed negative as evidenced by the negative correlation with the question *I find coursework gives you the opportunity to explore your own ideas* and the perception that teachers provided less help with coursework. The positive correlation with completing several drafts of coursework and using the library for additional

information perhaps suggested an overall anxiety about coursework and what was required. This was named negative coursework perception.

The canonical discriminant functions were evaluated at group means to enable the different cluster groups to be viewed in relation to the different functions (see Table 86).

Table 86: Year 10 canonical discriminant functions evaluated at group means

	Function				
Cluster	Self-help strategies	Anxiety	Ambivalence	Positive examination perception	Negative coursework perception
1	-.057	-.527	1.659	-.366	-.582
2	-.182	-1.982	-.921	.985	-.321
3	-2.872	-.291	.243	-.11	.463
4	2.547	-.769	.255	-.147	.486
5	.082	.722	-1.223	-.752	-.227
6	.386	2.629	.281	.813	-.005

The function self-help distinguished between cluster 3 and 4 and separated them from the remaining groups. This seemed to correspond with the initial characterisation of these cluster groups in that cluster 3 was perceived as disengaged and less likely to plan their work in contrast with cluster 4 who were motivated in the adoption of deliberate strategies to aid their work. The second function, anxiety, distinguished cluster 6 from cluster 2 and the remaining groups. Previously, cluster 6 had been perceived as being over confident and lacking anxiety in contrast to cluster 2 where anxiety had been prevalent. Function 3 separated cluster 1 from clusters 2 and 5. It seemed that clusters 2 and 5 were similar in their interest in their GCSEs in contrast to cluster 1 who were unlikely to check coursework drafts to improve. Function 4 distinguished clusters 2 and 6 from the other clusters and all groups were distinguished from cluster 5. Function 6 distinguished clusters 3 and 4 from the remaining clusters since here it appeared that

both clusters disliked the open-ended nature of coursework, although for different reasons.

In looking to assess predictive cluster membership, 95.1% of the pupils in the Year 10 cohort were classified correctly (see Table 87). Furthermore, the percentage correct was over 93% for all clusters suggesting that all groups were being predicted to a high level.

Table 87: Predicted group membership for Year 10

	1	2	3	4	5	6	
1	98.4% (127)	0.8% (1)	0% (0)	0% (0)	0.8% (1)	0% (0)	100% (129)
2	0.8% (1)	96.7% (116)	0.8% (1)	0.8% (1)	0.8% (1)	0% (0)	100% (120)
3	2.5% (4)	2.5% (4)	93.8% (151)	0% (0)	1.2% (2)	0% (0)	100% (161)
4	1.2% (2)	1.8% (3)	0% (0)	94.6% (158)	2.4% (4)	0% (0)	100% (167)
5	1.1% (2)	0.5% (1)	1.6% (3)	1.6% (3)	94% (171)	1.1% (2)	100% (182)
6	0.8% (1)	0% (0)	0% (0)	1.5% (2)	3.8% (5)	94% (125)	100% (133)

In order to take into account chance agreement a kappa coefficient was calculated (Green et al., 2000). The kappa coefficient of 0.941, $p < .001$ indicated a strong level of accurate prediction. Finally, to assess how well the procedure would classify a new sample, the percentage of Year 10 students accurately classified using the leave-one-out technique was estimated (Green et al., 2000). 86% of the cross-validated group cases were correctly classified (see Table 88). Hence, the Year 10 cluster solution was deemed efficient.

Table 88: Cross-validated group membership for Year 10

	1	2	3	4	5	6	
1	88.4% (114)	1.6% (2)	1.6% (2)	4.7% (6)	2.3% (3)	1.6% (2)	100% (129)
2	2.5% (3)	83.3% (100)	5.0% (6)	6.7% (8)	2.5% (3)	0% (0)	100% (120)
3	4.3% (7)	5% (8)	87% (140)	0% (0)	3.7% (6)	0% (0)	100% (161)
4	4.2% (7)	4.8% (8)	0% (0)	85.6% (143)	4.8% (8)	0.6% (1)	100% (167)
5	5.5% (10)	1.6% (3)	3.8% (7)	2.2% (4)	84.1% (153)	2.7% (5)	100% (182)
6	2.3% (3)	0% (0)	0.8% (1)	1.5% (2)	7.5% (10)	88% (117)	100% (133)

7.3 Student typologies in Year 11

Similar to the approach adopted with the Year 10 cohort, a cluster analysis was carried out on the data from Year 11 pupils. Again, a six cluster solution seemed the most appropriate with classification according to each cluster being spread between the pupils (see Table 89). The cluster number of each case and the distance of each case from the classification cluster centre were saved as variables.

Table 89: Number of Year 11 students classified within each cluster

Cluster	Number of Year 11 pupils
1	146
2	138
3	110
4	169
5	145
6	118

As with Year 10, in considering each cluster importance lay in exploring those questions that were contributing most to the differences in cluster membership. Again, analysis of variance F statistics were requested whereby high values of F (see appendix 17) suggested that certain questions made a greater contribution than others. Final

cluster mean values for those questions contributing most to the difference in cluster membership (F greater than 35) were calculated and appear in Table 90. For the full table see appendix 18.

Table 90: Year 11: final cluster centres mean values for those questions contributing most to the differences in cluster membership

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Year 11
I try to plan my homework so that it is manageable	3.63	3.09	2.58	3.06	3.8	2.19	3.11
I usually plan my revision weeks in advance	3.64	2.43	2.29	2.59	3.04	1.98	2.7
When revising I test myself to check that I understand everything	4.03	3.72	3.3	3.81	4	2.56	3.62
I usually make sure that I have everything I need before starting work	4.09	3.72	3.4	3.3	4.07	2.57	3.55
I find that coursework tends to pile up (R)	2.08	1.52	1.95	2.14	3.34	2.25	2.23
I find it difficult to organise my work so that I have some time to relax each evening (R)	2.41	1.88	2.38	2.95	3.61	3.24	2.76
I make sure that I check all my coursework drafts for any mistakes to see if I can improve	4.14	3.64	3.28	3.72	4.15	2.65	3.65
I usually have to work really hard at the end to complete coursework (R)	1.96	1.69	2	2.08	3.28	2.57	2.26
I usually leave my homework until it absolutely has to be done (R)	3.12	2.71	1.96	2.84	4.07	2.6	2.93
I don't feel confident in assessing whether I know something or not (R)	2.53	2.31	2.55	3.31	3.61	3.12	2.93
I get anxious about coursework (R)	2.2	1.72	2.67	2.59	3.38	3.25	2.62
If I know that I don't understand something then I avoid those questions (R)	3.05	2.64	2.36	3.44	4.02	2.86	3.11
It's difficult to manage the time required for coursework because there is no limit to what could be done (R)	2.29	1.89	1.92	2.83	3.48	2.75	2.56
I'm not always sure about what is required for coursework (R)	2.44	1.85	2.23	2.78	3.7	2.92	2.67
Sometimes I have to work really long hours to finish my homework (R)	2.02	1.57	3.05	2.36	3.03	3.06	2.48
Once the exam is over I find that I remember very little (R)	2.47	1.72	2.02	3.07	3.25	2.7	2.58
I feel that there is so much to learn that I find it difficult to know what to revise (R)	2.11	1.49	1.94	2.76	3.08	2.82	2.39

Note: R indicates that the scores were reversed.

Perceptions of studying that seemed to contribute most to differences in the cluster membership included aspects of planning in relation to coursework, homework and examinations. This was similar to the findings with the Year 10 cohort, although in the second year of the GCSE course there remained issues in relation to managing the amount of work that was required. Also important were specific techniques such as checking for understanding when revising or to improve coursework drafts. Questions illustrating anxiety about examinations or coursework and uncertainty about specific

requirements also contributed to differences in cluster membership, as did concerns about time management.

Cluster 1: Basic awareness of planning and the importance of effort, but lack of control over time and task demands mean that time management is poor

Cluster 1 reported the use of positive planning strategies in relation to attempting to manage homework, organising resources before starting work and planning revision in advance. Also positive was the effort put into understanding and in looking to improve coursework drafts. Time management was a concern in relation to coursework and there were indications of anxiety and overload in relation to coursework and examinations. It seemed that there was a real lack of ability in being able to manage what was required so that, although there was an awareness of the possible benefits of simple planning, there was no real control over time management to the detriment of the work. Overall there was a lack of efficiency in directing their studying for GCSE.

Cluster 2: Hard working students but with high anxiety: motivated but lack confidence in ability

Cluster 2 gained the lowest mean score for coursework piling up, for not being able to find time to relax each evening, for working really hard at the end to complete coursework, for lacking confidence in assessing whether they knew something or not, for being anxious about coursework, for finding it difficult to manage coursework time, for being most unsure of coursework requirements, for being the most likely to work long hours to complete homework, for reporting remembering least after the exam and for not knowing where to start when revising. There was evidence of effort in organising the necessary materials before starting work, testing when revising and checking coursework drafts. It appeared that this cluster was an overworking group.

Cluster 3: Poor students with little directed effort into improving understanding, planning or checking work

Cluster 3 had a narrower range of mean scores than the other clusters. They were less likely to plan their homework and revision in relation to other groups. They gained the second lowest mean scores for effort when revising and checking coursework; however, they were the most likely to leave homework until it had to be done and avoided questions where they didn't understand something. Although there was a concern about the open-ended nature of coursework, it appeared that this cluster was not particularly anxious about coursework in comparison to the other groups.

Cluster 4: Reasonable perception of studying without too much anxiety, but perhaps low on effort in some areas

Cluster 4 had no high mean scores, as evidenced by mean scores over 4, and neither did they have any mean scores lower than 2. The planning scores were generally lower than the year group mean; however, it was apparent that this cluster put effort into checking understanding when revising. They were quite confident in assessing whether they knew something or not and appeared willing to attempt questions even if unsure. It seemed that this group was quite confident in their ability and reported remembering material once the examination was over.

Cluster 5: Hard working good students who make effective use of planning and study strategies

Cluster 5 evidenced high mean scores for managing homework, testing themselves when revising, checking coursework drafts in order to improve, gathering together all materials before starting work and planning their revision in advance. While these strategies were also in evidence among Cluster 1, Cluster 5 was distinctive in organising

work so that there was time to relax each evening, they were less likely to have to work really hard at the end to complete coursework and were the least likely of the groups to leave homework until it had to be done. They were the most confident in assessing whether they knew something or not and the least anxious about coursework. They were also less anxious about the examinations than the other cluster groups and responded that they remembered more once the examination was over.

Cluster 6: Lack of focused effort or concern, poor strategy use, not anxious

The low mean scores obtained for planning questions in relation to the other cluster groups suggested that Cluster 6 was distinctive in the lack of planning, either for homework or revision. It also appeared that they lacked specific organisational skills in that they were less likely to have all materials together before starting work. They obtained the lowest mean score for reporting that they checked coursework drafts to see if they could improve and for whether they checked their understanding when revising. It appeared that the students were not particularly interested in their work; neither were they anxious about it. It seemed that cluster 6 did the minimum of what was required.

As before, the Euclidean distances between the final cluster centres were examined since this enabled consideration of where differences and similarities lay between the groups (see Table 91). Cluster 1 was most dissimilar to cluster 6, whereas cluster 2 was most dissimilar to clusters 5 and 6. Cluster 3 differed most from cluster 5 whereas cluster 4 was similar to all clusters. Cluster 5 also differed most from cluster 6.

Table 91: Euclidean distances between the final Year 11 cluster centres

Cluster	1	2	3	4	5	6
1		4.187	5.246	4.784	5.446	8.067
2	4.187		4.389	4.841	7.327	6.963
3	5.246	4.389		4.685	6.979	4.981
4	4.784	4.841	4.685		4.139	4.825
5	5.446	7.327	6.979	4.139		7.03
6	8.067	6.963	4.981	4.825	7.03	

Similar to the procedures with Year 10, discriminant analysis was performed on membership or non-membership of each cluster to examine the effectiveness of the cluster solution. Predictive cluster membership was also explored. The overall Wilks' lambda was significant, indicating that there were differences among groups across the six cluster groups (see Table 92). In addition, all remaining tests were significant. This indicated that all cluster groups differentiated significantly after partialling out the effects of each discriminant function in order.

Table 92: Significance tests for Year 11 discriminant analysis

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 5	0.03	2750.16	355	< 0.001
2 through 5	0.104	1778.94	280	< 0.001
3 through 5	0.335	859.8	207	< 0.001
4 through 5	0.587	418.56	136	< 0.001
5	0.774	201.17	67	< 0.001

The values of eta square (see Table 93) indicated how much of the variability of scores for each discriminant function was accounted for by differences among the cluster groups.

Table 93: Eigenvalues and eta square for Year 11 discriminant analysis

Function	Eigenvalue	% of variance	Cumulative %	Canonical correlation	Eta
1	2.44	40.5	40.5	.842	.709
2	2.22	36.9	77.4	.83	.689
3	.75	12.5	89.9	.655	.429
4	.32	5.3	95.2	.491	.241
5	.29	4.8	100	.475	.226

71% of the variability of the scores for the first discriminant function was accounted for by differences among the six cluster groups. For the second discriminant function the value was 69%. Functions 4 and 5, as anticipated, made less of a contribution after the earlier functions had been taken account of.

In considering the meaning of each function correlation coefficients for the discriminant functions were explored. Only those questions with a correlation of more than 0.2 are reported in Table 94 given the weak association with the function when the correlation is less than this (Hedderson, 1991). The full table of correlation coefficients for the discriminant functions appears in appendix 19.

Table 94: Structure matrix for Year 11 discriminant analysis

	Function				
	1	2	3	4	5
I feel that I have to spend hours rote-learning facts for a lot of the exams (R)	-.269(*)	0.073	0.096	0.215	0.004
I get anxious about coursework (R)	-.269(*)	0.156	0.155	0.06	-0.127
I feel that there is so much to learn that I find it difficult to know what to revise (R)	-.253(*)	0.232	-0.037	-0.101	0.1
Often I have to cancel seeing my friends or going out because I have too much work to do (R)	-.249(*)	-0.027	0.092	0.179	0.03
I find it difficult to organise my work so that I have some time to relax each evening (R)	-.248(*)	0.226	0.009	-0.014	-0.051
I usually make sure that I have everything I need before starting work	.236(*)	0.195	0.072	0.121	-0.123
If I feel unsure about something I ask for help from someone else	.234(*)	0.139	-0.045	0.182	0.126
If I am unsure about something then I make an effort to improve my understanding	.232(*)	0.189	-0.022	0.021	0.044
I often spend long hours doing coursework because I am anxious for it to be right (R)	-.227(*)	-0.109	0.168	0.132	0.115
When revising I test myself to check that I understand everything	.227(*)	0.221	-0.074	0.111	0.216

I get anxious about exams because I don't feel that I do my best (R)	-.225(*)	0.129	0.075	-0.077	0.103
I usually try to remember lots of facts for exams rather than gaining an overview (R)	-.224(*)	0.047	-0.077	-0.006	-0.098
I often re-read things if I don't understand the first time	.212(*)	0.11	-0.003	0.16	0.089
I usually leave my homework until it absolutely has to be done (R)	0.011	.326(*)	-0.139	-0.003	-0.317
I find that coursework tends to pile up (R)	-0.146	.303(*)	0.095	0.134	-0.215
If I know that I don't understand something then I avoid those questions (R)	-0.071	.3(*)	-0.151	0.034	0.037
I'm not always sure about what is required for coursework (R)	-0.205	.292(*)	0.018	0.031	-0.118
If I don't feel that the homework is important then I do it in the shortest time possible (R)	0.063	.29(*)	-0.065	0.025	-0.089
It's difficult to manage the time required for coursework because there is no limit to what could be done (R)	-0.189	.285(*)	-0.111	0.015	-0.039
I try to plan my homework so that it is manageable	0.185	.278(*)	-0.036	0.023	-0.063
Once the exam is over I find that I remember very little (R)	-0.178	.263(*)	-0.074	-0.127	0.219
I make sure that I check all my coursework drafts for any mistakes to see if I can improve	0.201	.243(*)	-0.024	0.05	0.1
I find it difficult to concentrate when working at home (R)	0.033	.236(*)	-0.089	0.067	-0.092
I find it difficult to make notes for revision (R)	-0.105	.219(*)	-0.051	-0.06	0.191
I don't feel confident in assessing whether I know something or not (R)	-0.207	.217(*)	-0.096	0.095	0.115
I go through lots of practice questions and past papers to help prepare for the exams	0.145	.21(*)	0.045	-0.088	0.132
I usually do my homework at school	0.003	-0.11	.397(*)	-0.024	0.114
I often work in front of the TV because it prevents me from getting bored (R)	0.029	0.208	-.375(*)	0.004	-0.008
Sometimes I have to work really long hours to finish my homework (R)	-0.258	0.079	.305(*)	0.157	-0.047
I know what I need to do to get a good mark	0.044	0.194	.293(*)	-0.164	0.272
I find websites (e.g. BBC Bitesize) helpful when revising for exams	0.118	0.07	.237(*)	-0.08	0.06
I usually take regular breaks when doing my homework	0.108	-0.042	.234(*)	0.003	-0.059
Most of the exams are based on the work that I have done during the GCSE course so I don't feel that there is too much to revise	-0.032	-0.031	.224(*)	-0.187	-0.001
I try to break my coursework down into small tasks rather than seeing it as a massive project	0.161	0.169	.217(*)	0.027	-0.053
I use different ways of revising	0.146	0.132	.217(*)	-0.197	-0.044
I tend to revise in short bursts because I concentrate better that way	0.118	-0.015	.206(*)	0.043	-0.031
I find it hard to accept criticism of my work (R)	-0.11	0.084	0.004	.332(*)	0.079
I usually plan my revision weeks in advance	0.189	0.224	0.104	-.329(*)	0.009
I often go to the library for extra information	0.165	0.176	0.097	-.256(*)	-0.174
I tend to make lots of notes about a topic before feeling confident enough to write an essay (R)	-0.206	-0.139	-0.074	.254(*)	-0.065
When I need information about a topic I usually rely on the books I have at home (R)	-0.127	0.008	0.066	.23(*)	-0.063
I usually have to work really hard at the end to complete coursework (R)	-0.181	0.232	0.062	0.145	-.334(*)
I find it hard to memorise things (R)	-0.162	0.178	-0.014	-0.087	.326(*)
The amount of homework varies so much that it is difficult to plan my work (R)	-0.211	0.099	0.127	-0.036	-.301(*)
When revising I usually test myself to see if I remember things	0.199	0.194	0.043	0.096	.291(*)
I find it difficult to summarise information (R)	-0.152	0.194	-0.109	0.004	.28(*)
I like doing coursework because you can do it in your own time	0.111	0.102	0.228	-0.08	-.242(*)
I make use of the feedback from teachers since it helps me to improve	0.192	0.164	0.007	0.177	.225(*)
I prefer exams because you know what you've got to learn	0.009	0.007	-0.002	-0.12	.219(*)

Note: * indicates the largest absolute correlation between each variable and discriminant function, R indicates that the scores were reversed.

The functions generated by the Year 11 data seemed more complex than those identified among the Year 10 cohort. Rather than functions focusing on particular strengths or weaknesses in perceptions of studying for GCSE, it seemed that both adaptive and maladaptive strategies might be present in each function.

Function 1 was characterised by two contrasting groups of questions. The first group contained questions indicative of an anxious perception of studying for GCSEs in relation to coursework, the volume of material to be revised, a lack of time to relax each evening, cancelling seeing friends due to the volume of work and the need to rote-learn material for the examination. These questions, however, were all negatively correlated with the discriminant function. The second group of questions concerned responses that reflected a positive perception of studying for GSCE in relation to asking for help if unsure, making an effort to improve understanding, testing when revising to check understanding and having all materials together before starting work. This function was named control over work.

Function 2 was characterised by time management and effort. Positive correlations were seen for coursework piling up, leaving homework until it had to be done, avoiding questions where things were not understood and being unsure of coursework requirements. Hence it seemed that time management was poor and little effort placed on valuing work.

In considering function 3 the focus on taking breaks when working, revising in short bursts and breaking coursework down into smaller tasks suggested an inability to concentrate for longer periods of time. This in conjunction with usually doing homework at school and the perception that there was little to revise for the

examinations indicated a lack of concern about the GCSEs that was not apparent in the other functions. The use of websites might be perceived positively; however, in relation to taking breaks, websites are structured to present small amounts of information, which links with difficulties with concentration. This was named concentration.

Function 4, named external focus and confidence, was associated with positive correlations for finding it hard to accept criticism from others, the reliance on books at home and writing lots of notes before being confident enough to write an essay. The negative correlation for using the library suggested an inverse relationship as did that for planning revision weeks in advance. There seemed a lack of external focus or confidence.

Function 5 seemed characterised by a sense of knowing what was required but being reluctant to work hard and make an effort to improve. Hence it was hard to memorise things and difficult to summarise information, but there was a preference for exams rather than coursework. This was named reluctance to work hard. The negative correlations for working really hard to complete coursework and valuing coursework since it can be done in one's own time seemed to support this.

The canonical discriminant functions were evaluated at group means to enable the different cluster groups to be viewed in relation to the different functions (see Table 95). Function 1 distinguished between clusters 1, 2 and 6 with clusters 1 and 2 differing to cluster 6. This function, characterised by a sense of control reflected some of the differences seen in the initial descriptions of each cluster. Clusters 1 and 2 seemed to have little ownership or control of their work, which generated anxiety for cluster 2 whereas cluster 6 seemed unconcerned by this.

Table 95: Year 11 canonical discriminant functions evaluated at group means

	Function				
Cluster	Control over work	Time management and effort	Concentration	External focus and confidence	Reluctance to work hard
1	1.892	.643	.574	-.897	-.026
2	1.791	-1.497	-1.025	.428	-.436
3	-.067	-1.488	1.705	.632	.317
4	-.59	.336	-.773	-.014	.915
5	-.595	2.596	.102	.497	-.447
6	-2.797	-1.330	-.119	-.571	-.514

Function 2 seemed to separate out the clusters into three groups: clusters 2, 3 and 6, clusters 1 and 4 and cluster 5. In relation to time management and effort, cluster 5 appeared to have a good array of study strategies whereby they worked hard but also had a good understanding of the requirements of coursework and examinations, yet found time to relax each evening. In clusters 2, 3 and 6 this confidence to manage their time appeared to be lacking, although for different reasons. Cluster 2 seemed particularly anxious.

Function 3 seemed related to concentration and distinguished cluster 3 most from the other clusters. In the initial descriptions of the clusters this cluster had appeared to put little effort into studying for their GCSE. Function 4 separated out cluster 1 from the other clusters. Previously this cluster had been seen to lack efficiency in directing their studying for GCSE. Function 5 distinguished cluster 4 from the other clusters and seemed to characterise a reluctance to work hard, although there was an awareness of what was required. This cluster had been characterised by low effort in some areas, particularly planning.

In looking to assess predictive cluster membership, which would validate the initial cluster solution, 93.1% of the pupils in the Year 11 cohort were classified correctly (see Table 96). It seemed though that the prediction of cluster 4 was less reliable than the other clusters.

Table 96: Predicted group membership for Year 11

	1	2	3	4	5	6	
1	93.8% (137)	0.7% (1)	0% (0)	3.4% (5)	2.1% (3)	0% (0)	100% (146)
2	2.9% (4)	94.2% (130)	1.4% (2)	1.4% (2)	0% (0)	0% (0)	100% (138)
3	0.9% (1)	1.8% (2)	95.5% (105)	0.9% (1)	0% (0)	0.9% (1)	100% (110)
4	1.2% (2)	2.4% (4)	3.6% (6)	88.8% (150)	1.8% (3)	2.4% (4)	100% (169)
5	3.4% (5)	0% (0)	0% (0)	3.4% (5)	92.4% (134)	0.7% (1)	100% (145)
6	0% (0)	0% (0)	1.7% (2)	2.5% (3)	0% (0)	95.8% (113)	100% (118)

As before, a kappa coefficient was calculated in order to take chance agreement into account. The kappa coefficient of 0.917, $p < .001$ indicated a strong level of accurate prediction.

Table 97: Cross-validated group membership for Year 11

	1	2	3	4	5	6	
1	81.5% (119)	3.4% (5)	4.8% (7)	6.8% (10)	3.4% (5)	0% (0)	100% (146)
2	5.1% (7)	89.9% (124)	2.9% (4)	2.2% (3)	0% (0)	0% (0)	100% (138)
3	2.7 % (3)	5.5% (6)	82.7% (91)	5.5% (6)	0% (0)	3.6% (4)	100% (110)
4	1.8% (3)	5.9% (10)	5.9% (10)	76.9% (130)	4.1% (7)	5.3% (9)	100% (169)
5	4.1% (6)	0% (0)	0.7% (1)	9.7% (14)	84.8% (123)	0.7% (1)	100% (145)
6	0% (0)	0.8% (1)	5.9% (7)	9.3% (11)	0% (0)	83.9% (99)	100% (118)

Finally, to assess how well the procedure would classify a new sample, the percentage of Year 11 students accurately classified using the leave-one-out technique was

estimated. 83.1% of the cross-validated group cases were correctly classified (see Table 97). The Year 11 cluster solution seemed efficient.

7.4 Differences in attainment according to student typology

7.4.1 Year 10

Differences between the six cluster groups were explored in relation to the average GCSE point score and the reported homework hours completed each week (see Table 98).

Table 98: Year 10 mean and standard deviation for average number of points per GCSE and reported homework hours according to cluster group

	Average GCSE point score			Reported homework hours each week		
Cluster Number	Mean	SD	N	Mean	SD	N
1	4.33	1.502	119	8.37	5.348	89
2	5.65	1.291	115	8.9	4.255	100
3	5.05	1.445	153	7	4.481	126
4	5.17	1.718	162	10.48	5.907	139
5	6.21	1.31	177	10.89	5.215	154
6	5.54	1.46	130	10.25	5.261	117

Cluster 1 had been perceived as lacking interest in checking their work and revising and appeared to lack motivation in the application of techniques that might support their GCSE studies. They were not particularly anxious about the different elements of the GCSE. They gained the lowest mean average GCSE point score of all cluster groups. They reported completing the second lowest amount of homework each week.

Cluster 2, who seemed to lack planning and time management skills and appeared to put little effort into managing their studying, gained a mean average GCSE point score of

5.65 and reported completing 8.9 hours homework each week. This was less homework than reported by the other high achieving clusters.

Cluster 3, who had appeared to be poor students who were disengaged with their work and lacked motivation, completed the least amount of homework each week and gained a mean of 5.05 for average GCSE point score, which was the second lowest of the cluster groups.

Cluster 4, characterised as hard working students with high anxiety levels, gained a mean of 5.17 for average GCSE point score but reported completing over ten hours homework each week.

Cluster 5, who appeared to have a balanced perception of studying with effective planning and checking strategies in place, gained the highest mean average GCSE point score overall. They also reported completing the highest amount of homework each week.

Cluster 6, who were perceived as self-aware but perhaps over confident, gained the third highest average mean point score for GCSE and completed over ten hours homework each week.

ANOVA revealed that the differences between the cluster groups were significant for the average GCSE point score ($F(5, 850) = 26.679$, $p < .001$, partial $\eta^2 = .14$). Following this a one-way analysis of covariance was carried out with average SATs score entered as the covariate: this so that prior knowledge could be controlled for. Evaluation of the homogeneity-of-slopes assumption was satisfactory: the interaction

between average SATs score and cluster group was not significant ($F(5, 843) = 1.501$, $p = .187$, partial $\eta^2 = .009$). The ANCOVA was significant ($F(5, 843) = 6.195$, $p < .001$, partial $\eta^2 = .04$). This suggested that the six groups differed in their perceptions of studying for GCSE and also in their performance patterns as measured by average GCSE point score when controlling for prior knowledge.

The means of the average GCSE point scores adjusted for initial differences appear in Table 99.

Table 99: Year 10 adjusted means for average number of points per GCSE

	Average GCSE point score			
Cluster Number	Mean	Rank position of mean	Adjusted mean	Rank position of adjusted mean
1	4.33	6	5.13	6
2	5.65	2	5.43	3
3	5.05	5	5.22	5
4	5.17	4	5.35	4
5	6.21	1	5.64	1
6	5.54	3	5.49	2

In ranking the adjusted means it was apparent that the highest achieving clusters were still ranked above clusters 1, 3 and 4.

The differences between the cluster groups in relation to the reported homework hours completed each week were also statistically significant ($F(5, 719) = 10.829$, $p < .001$, partial $\eta^2 = .07$). Since high attaining pupils are often given more homework, analysis of covariance was undertaken with SATs as a covariate. Evaluation of the homogeneity-of-slopes assumption was satisfactory: the interaction between average

SATs score and cluster group was not significant (F (5, 713) = .467, p = .801, partial η^2 =.003). The differences in the reported homework hours between the cluster groups remained (F (5, 713) = 7.979, p < .001, partial η^2 =.05).

7.4.2 Year 11

Within Year 11 there were three high achieving cluster groups, as evidenced by the high mean score for average GCSE points (see Table 100). These were groups 2, 4 and 5.

Table 100: Year 11 mean and standard deviation for average number of points per GCSE and reported homework hours according to cluster group

	Average GCSE point score			Reported homework hours each week		
Cluster Number	Mean	SD	N	Mean	SD	N
1	5.04	1.562	146	10.65	5.281	122
2	5.81	1.326	137	11.54	5.014	128
3	4.61	1.326	110	8.42	4.616	83
4	5.92	1.403	167	9.75	4.616	148
5	5.78	1.286	145	11.21	5.103	134
6	5.19	1.492	117	8.77	4.157	92

Cluster 2 was perceived as motivated but with high levels of anxiety. They reported completing the most homework each week. Cluster 5 was seen as being motivated and with an effective use of strategies whereby anxiety was not detrimental to studying. This cluster reported completing a high level of homework each week. Cluster 4 gained the highest mean overall for average GCSE points score and reported completing less homework than either cluster 2 or 5. This cluster appeared to have a balanced perception of studying for GCSE.

Of the lower achieving clusters, cluster 3 appeared to have gained less success at GCSE than the other cluster groups as illustrated by the mean of 4.61 – below a C grade. This cluster had been perceived as poor students who put little effort into making a difference in their work. They also reported completing less homework than the other cluster groups. Cluster groups 1 and 6 gained a mean average GCSE point score just above 5. Previously, cluster 1 had been seen as struggling students, who although putting some effort into their work, lacked a clear direction. They reported completing over ten hours homework each week. Cluster 6 had been perceived as doing the minimum amount required and reported completing the second lowest amount of homework each week.

ANOVA revealed that the differences between the cluster groups were significant for the average GCSE point score ($F(5, 816) = 17.984$, $p < .001$, partial $\eta^2 = .1$). Following this a one-way analysis of covariance was carried out with average SATs score entered as the covariate. Evaluation of the homogeneity-of-slopes assumption was satisfactory: the interaction between average SATs score and cluster group was not significant ($F(5, 798) = 1.831$, $p = .104$, partial $\eta^2 = .01$). The ANCOVA was significant ($F(5, 798) = 9.417$, $p < .001$, partial $\eta^2 = .06$). As with the Year 10 students, this suggested that among Year 11 the six groups differed in their perceptions of studying for GCSE and in their performance patterns as measured by average GCSE point score when controlling for prior knowledge.

The means of the average GCSE point scores adjusted for initial differences appear in Table 101. The higher achieving clusters: 2, 4 and 5, were still ranked above the other clusters after controlling for prior knowledge, although the adjusted mean for cluster 5 now placed this group above clusters 2 and 4. Of note was the adjusted mean of 5.46

for cluster 1 compared within the initial mean of 5.04. This group reported completing over ten hours homework each week.

Table 101: Year 11 adjusted means for average number of points per GCSE

	Average GCSE point score			
Cluster Number	Mean	Rank position of mean	Adjusted mean	Rank position of adjusted mean
1	5.04	5	5.46	4
2	5.81	2	5.62	3
3	4.61	6	5.11	6
4	5.92	1	5.63	2
5	5.78	3	5.64	1
6	5.19	4	5.28	5

The differences between the cluster groups in relation to the reported homework completed each week were also significant ($F (5, 701) = 7.432$, $p < .001$, partial $\eta^2 = .05$). When average SATs score was entered as a covariate the difference remained statistically significant ($F (5, 686) = 6.749$, $p < .001$, partial $\eta^2 = .05$). There was though a significant interaction between SATs and cluster groups ($F (5, 686) = 2.263$, $p = .047$, partial $\eta^2 = .02$), which suggested that higher attaining pupils were given more homework.

7.5 Summary of key findings

Cluster analysis techniques were used to classify the students according to their study typology. The cluster groups differed in their use of metacognitive, effort-management, time-management and study strategies. In both year groups, clusters were identified with poor students, who had become disengaged with their studies, and hard working students, who valued the task and adopted a variety of strategies. Clusters were also

identified with poor time management strategies, poor use of planning and poor organisational strategies. It was apparent, too, that not all hard working students had a positive perception of studying for GCSE, but rather were driven by a sense of anxiety. The clusters differed in relation to attainment at GCSE and the amount of homework that they reported completing.

CHAPTER 8: EXPERIENCES OF STUDYING FOR GCSE: THE PUPILS' VOICES

8.1 Introduction

The aim of the focus group interviews had been to afford a deeper consideration of the perceptions that pupils held about their GCSE studies (see 2.1, 2.2 and 3.3). That the twenty interviews were carried out throughout the two-year GCSE course meant that indications of change in perceptions could be considered. In analysing the interview transcripts, using the seven-stage iterative process developed by Cooper and McIntyre (1993) (see 3.5), it was apparent that most of the pupils had used the interviews as an opportunity to voice their concerns about their experiences of studying for GCSE. Throughout, the pupils tended to consider the different aspects of GCSE separately, hence the analysis here follows that approach and initially considers perceptions of coursework and perceptions of examinations. Since many of the concerns that arose in the interviews were related to time management and appear under perceptions of coursework and examinations, a short section is included on perceptions of homework. During the interviews a constant theme was that of pressure, hence a separate section is presented on this. Finally, attention is given to perceptions of change over the two-year course. Note that each quotation is followed by an attribution that provides the year and sex of the pupil and a school number. For reference, the school numbers refer to those identified in 3.4.1.

8.2 Key themes arising from the group interviews

Following the thematic analysis, the interview data were reanalysed in relation to the main themes that had emerged. Group responses were calculated from these where statements were made within each category. These are presented in Table 102. The decision to focus on group, rather than individual, responses was warranted due to the

discursive nature of focus groups (see 3.5). The major themes that emerged related to overload, pressure and the level of teacher support. These were seen in relation to coursework, examinations, homework, time management and success in GCSEs.

Table 102: Number of group responses in the main categories from the twenty focus group interviews

	Year 10	Year 11
Overload of coursework requirements	9	10
Overload created due to the examination curriculum	5	7
Pressure created by the nature of examinations	8	7
Concerns with the level of practical teacher support for examinations and coursework	9	8
Concerns with the scheduling of internal school deadlines	7	8
Pressure arising from balancing the time for coursework, homework and revision	7	7
General perception of GCSEs as stressful	6	9
Pressure created by high stake GCSEs for their future	8	10
School pressure to succeed	8	6
Parental pressure to succeed	8	9

In both year groups pupils reported high levels of overload related to coursework requirements and were concerned with the level of practical support offered by teachers for coursework and examinations. Year 11 pupils reported higher levels of overload in relation to the examinations, which seemed to reflect the proximity of the final examinations. Year 11 pupils also reported higher levels of general stress in relation to the GCSE, and particularly in relation to the importance of their GCSE results for their future career. The pressure arising from balancing time for coursework, homework and revision was the same across both years. The perception of being under less pressure from the school to succeed in Year 11 may have been because the pupils were more

focused on external pressure due to the need to gain certain GCSE grades to enter college or the sixth form. Overall, it seemed that pupils perceived themselves to have little control over their studying for GCSE.

8.3 Perceptions of coursework

8.3.1 Coursework overload

Throughout the interviews one theme that emerged strongly was that of coursework overload. Pupils from both years felt, at times, overloaded with the volume of coursework that was demanded from them:

> I think there is too much work for GCSE. Like the number of courseworks and all piled on top of each other, rather than being able to do them in turn. (Year 11 boy, S3)

> Like, one time a couple of weeks ago, I had like four courseworks that needed to be handed in at the same time and like I had to do all of it at the same time. (Year 10 girl, S3)

In particular, pupils expressed concern about how coursework was scheduled:

> Yes, because they (*the teachers*) try to cram it in. It just gets crammed in. Like I'm doing two pieces of science at the same time. So it's quite hard and English as well. (Year 10 boy, S3)

> Like with my English, I had loads of coursework and then my maths teacher set me loads and the next lesson I had science coursework. I don't know how they expect you to do it. (Year 10 boy, S2)

> Sometimes you have long times without any coursework. Then suddenly you have loads to do all at the same time. (Year 10 boy, S4)

There were issues, too, with the setting of deadlines for coursework to be submitted, these being internal deadlines set by teachers in school.

> Teachers should talk to each other about the coursework deadlines so that they are not all at the same time. (Year 11 girl, S6)

> But I think they should communicate with other teachers about when the deadlines are. That is the thing because you can't do everything at once. Especially like with really different subjects. Like with drama it's really difficult to switch from doing that to technology because they are so different. (Year 11 girl, S6)

Apparent also was that tensions arose from the expectations of teachers in relation to prioritising their subject, which may be in conflict with the perceptions of the pupils:

> The teachers get really stressed with you if you don't make their subject a priority. Like maths and science and English are probably the priority subjects but then Food Tech. expect us to make that a priority. (Year 11 girl, S1)

8.3.2 Coursework: understanding the demands

For some pupils, there was an uncertainty about the demands of coursework:

> Maths I understand, but science I completely lose it. No one knows what they're meant to do. (Year 10 boy, S3)

which in some cases, led to pupils having to redo work already submitted.

> Also like, with my RE teacher, we've been doing coursework in class. And like I didn't know what to do so I asked my teacher and he said well it's up to you. Then I start writing my stuff and he comes up and says what's this and I say well

> I asked you but you didn't give me any help. Now I've got to do it all over again. (Year 10 boy, S2)

In addition to expressing a need for more specific guidance about the demands of coursework, pupils also voiced concerns about the level of teacher input in terms of monitoring coursework when it was completed over a period of time:

> Business was hard because we were given the coursework and we like had six months to do it, but the teacher... I found in the middle of it did not do any coursework lessons and didn't monitor the coursework and so no-one was actually doing coursework and everyone did it on the last weekend. And we had to do 150 pages, a ludicrous amount of work, everyone was suicidal. (Year 11 boy, S4)

8.3.3 Coursework management

The need to manage coursework by taking a self-disciplined approach was acknowledged and appeared to relate to a strategic perception of studying:

> You've really got to do it (*the coursework*) otherwise it builds, it keeps building up at you and you just get behind. Over the year we've become a lot more time managed and a lot more focused than we were because otherwise it just piles up and you just can't do it all. (Year 10 girl, S6)

Pupils also realised that their lack of self-discipline could lead to problems in managing their work:

> I have a lot of trouble with my coursework because I'm not all that disciplined. (Year 10 boy, S2)

A further concern related to difficulties in prioritising work, particularly in relation to the demands of coursework and homework:

> Yes it is hard to prioritise. Like you have to think about if you've got coursework then it's going to take a lot longer and yet you won't have a lot of time for homework. So then your homework is going to suffer. (Year 10 girl, S3)

> It's difficult trying to prioritise what is more important. Like that one homework is coursework so you do that one first and then you get so stuck into that that you forget about the rest. Then like 'Oh my God' this has got to be handed in tomorrow and you haven't done it. (Year 10 boy, S3)

It seemed that pupils felt a lack of control over their coursework, since they perceived the teachers to be in control of setting deadlines and also having the power to change coursework deadlines. In some instances, the changing of internal coursework deadlines created an additional anxiety and irritation:

> What annoys me is like ICT there was a deadline on the Friday and loads of people had had the day before off and had been up until like 4am in the morning to finish it off and then they (*the teachers*) gave us an extension to finish it. And like the people who had actually finished it on time got no credit for finishing it on time. (Year 11 girl, S1)

In some instances the movement of coursework deadlines appeared to contribute to a perception of ambivalence, with pupils 'giving up' trying to get their coursework in on time:

> Because like in some of the lessons like the teachers say the coursework is due in on Friday but then they say I'll give you until Monday. Then I'll give you until Wednesday, then it'll be next Friday and then some people give up. Like

> I'll give it in on the first Friday and then we're still waiting three weeks later for half of the people to hand it in. (Year 10 girl, S7)

8.3.4 Teacher support

Pupils expressed concern about the different approaches adopted by teachers in presenting the coursework and how the teachers sought to manage or scaffold the process of completing coursework:

> Some will say, here is the coursework and then they will go along teaching you after that, some will spread it out over the year and some will teach you everything they want to teach you and then give you the coursework which kind of annoys me because then you end up with eight pieces in the last week. (Year 11 boy, S4)

> Because with some of the coursework options they gave it to us and said well the best thing would be to do it now, but no-one really pushed us. And so, suddenly, they are in a panic and shouting for it now. They need to offer more support. (Year 11 girl, S6)

A further issue, related to the setting of coursework deadlines, was that of redoing earlier drafts of coursework. Here there were instances of long delays in the handing back of coursework, which meant that pupils struggled to remember the initial task:

> Yeh, but the only problem with that is like I handed my science coursework in in December and I only just got it back *(in July)* and like I can't remember what I've done. So to improve it I don't really know what to do because it's based on an experiment and I just can't remember. (Year 10 boy, S2)

While coursework was intended to offer pupils the opportunity to explore their own ideas in their own time, it appeared that this intended aim was not being met. Pupils

seemed to lack ownership over their coursework and perceived the control to be with the teachers.

8.3.5 Redrafting coursework

One aspect of studying that is unique to coursework in comparison to examinations is the possibility of producing a draft of the final piece of work in order to receive feedback from teachers with the opportunity to improve. It is this process that could facilitate a deep perception of learning, with pupils given formative feedback to enhance their understanding:

> With the coursework, you can also improve on it because you can hand it in, get some feedback and then improve. (Year 11 boy, S2)

> With coursework like, you can build up and you can learn. (Year 10 boy, S3)

Although pupils seemed to welcome the opportunity to amend their coursework in order to improve, they reported lack of time to do this:

> There's been a lot of pressure during the last few weeks, especially in science because they've allowed you to correct and improve your work but it had to be done really quickly. (Year 11 boy, S4)

It also seemed that pupils reached a point where they lost interest in redrafting their coursework, even when they realised that they might be able to improve:

> I think like I could improve it but sometimes you just run out of time and can't be bothered. You just hand in what you've got. (Year 10 boy, S2)

Thus while pupils might be prepared to make some changes to their coursework, they appeared to reach saturation point. It may be that from the teachers' perspective this seems illustrative of ambivalence to working for their GCSEs. The following exchange from one Year 11 interview captures this well:

> Well they give it back to you. You just want to get rid of it.
>
> Once would be OK but then they just keep giving it back to you.
>
> I haven't actually changed mine even though they gave it back.
>
> You get to a point where you don't really care about it. (Year 11 girls, S1)

8.3.6 The value of coursework

Pupils in both years expressed concerns about coursework in relation to time management, support from teachers and overload. In Year 11 some pupils began to question the value of coursework; this in relation to the final percentage of the GCSE it was worth in comparison with the examination components. In speaking about English coursework, one pupil commented:

> Like you get really frustrated because it has been so stressful doing all the coursework and you do about ten pieces and only three get into it and it only counts 20%. You're like 'great'. It does not seem as if it is worth all the effort you have put in. (Year 11 girl, S6)

Pupils recognised the amount of effort that they had put into their coursework and yet this seemed disproportionate to the amount of marks it was actually worth:

> I think sometimes you put so much effort into your coursework and it is not actually worth very much. (Year 11 girl, S6)

In addition, one possible purpose of coursework in relieving some of the pressure from the final examinations was also an issue:

> I always thought the point of coursework was to take the pressure off the exams, but it doesn't. It just means that when you should be revising you've got the pressure of coursework as well. Because like it is worth 20% at most. (Year 11 boy, S4)

> I think the coursework should be worth more, because if you have an off day in your GCSEs then the coursework won't really make much of a difference. (Year 11 boy, S3)

8.4 Perceptions of examinations

8.4.1 Examination anxiety

As with concerns raised about the coursework component of the GCSE, there were a number of concerns about the examination component that affected both Year 10 and Year 11 pupils alike. One concern was that of anxiety about the examinations.

> I just panic and I just do worse. So I prefer coursework in a way because like it's an easy way of picking up marks. (Year 10 girl, S6)

> You just get so nervous in exams and are under so much pressure. (Year 10 girl, S1)

> The thing that scares me about these exams is that you don't have a backup. Like with the mocks, if I do rubbish I've still got the real things. But with these, they are the real things and if I do rubbish I don't have a backup. (Year 11 girl, S1)

Pupils in both years of their GCSE course suggested some alternative approaches to the current system of end of course examinations. In some instances the intention was to reduce the amount of stress created by a single examination:

> If they had exams throughout the year like I feel it would be quite good because you learn how to take exams as well. If you only take one major exam each year you get panicked. But if you were doing little exams all through the year you would get used to how it works, the conditions and the sort of questions they ask. I think it would be better if we did more of them in science and English and stuff. (Year 10 girl, S6)

In one interview pupils discussed the modular system that was in place for AS and A2 Levels; however, even here the fact that all modules are taken in the same examination sitting was not felt to be any better than the current GCSE system. The pupils seemed to think that a more satisfactory approach would be to spread the examinations out, not only in terms of perceived anxiety, but because it may enhance the quality of learning.

> It would be much better if you had three periods throughout the year when you do exams. So in the first term you would be taught P1 for maths and then you took the exam at the end of the term and so on... It would also force you to continuously learn the subject. Because like with a lot of the exam stuff you think well I'll try to revise the night before exams and then I forget it after the exam. But if you're having to learn it throughout the year then you would probably be learning it more effectively. (Year 11 boy, S4)

From the pupils' experiences it appeared that the current GCSE system fostered a surface approach to learning.

8.4.2 Examination environment

In addition to the general anxiety expressed about examinations, pupils reported that the environment in which the examinations were to be taken contributed further to their discomfort. Particularly important seemed to be the large rooms in which examinations were undertaken, the requirement for silence, and the fact that pupils had to remain for the entire duration of the examination:

> But it's also the pressure of the big sort of hall and everyone in there is silent. If there was music, for instance, I would feel more comfortable doing the exam. The pressure's off. (Year 10 girl, S6)

> All of us like talking a lot so it's too hard being silent for that amount of time. What they should do is let us go when we've finished. (Year 10 boy, S7)

8.4.3 Examination: understanding the demands

For some pupils the examinations generated uncertainty at the fundamental level of knowing what to revise:

> There is just too much to revise. We never know what to revise for each subject – so it gets stressful. (Year 11 girl, S6)

> I don't know where to start. I don't know whether to do a whole subject and then move onto the next or do bits of different subjects but then I get confused. (Year 11 girl, S1)

8.4.4 Revision: use of notes

In exploring the revision strategies that pupils utilised it appeared that most pupils were not going to use the notes that they had made during the course of their GCSE. Pupils in both years reported that their notes were messy, disorganised and contained irrelevant material.

> They get really messy – I have dreadful handwriting. Like history notes last term, it was so boring, like I can't read my notes because they are so bad. (Year 10 girl, S1)

> My file is useless because it's all disorganised and I've lost bits. (Year 11 girl, S3)

> I've lost most of mine and so I'm going to have to see if I can borrow some from other people. So it's a real problem for me. I'll have to copy them from someone. (Year 11 boy, S3)

> We haven't got the notes and the notes we have got are not in the right order and they're just muddled. (Year 11 girl, S1)

Not only did it appear that the pupils' notes were not regarded as helpful, but, disappointingly, pupils appeared to place little value on the notes that they had made during the course.

8.4.5 Revision: the use of other resources

Revision guides

The lack of organised notes seemed to contribute to an increase in the use of revision guides:

> I find the revision guides useful. My file is useless because it's all disorganised and I've lost bits so the revision guides are much better. They are also more visual. (Year 11 girl, S3)

> I don't use my class book because quite a lot of the stuff it's like paragraphs of information which the revision book manages to shorten down into a sentence. It is so much easier to revise from a revision guide. (Year 11 girl, S6)

> I tend to use revision guides mostly because they contain everything you need to know. In class you are taught stuff but then someone asks a question and you go off on a tangent and then you make notes on that but you don't really need them. (Year 11 boy, S4)

Viewed positively the revision guides were perceived to present material in a more attractive way that might be conducive to learning; however, revision guides were also

regarded as having summarised information for pupils, which meant that they did not have to put the effort into doing this. It seemed a pity that pupils expressed greater confidence in the material presented in the revision guides than they did in the notes that they had made during the two-year course.

Less common were instances where pupils used revision guides to support and develop their understanding:

> I have revision guides which are like GCSE in a week. They're really good. It's like ten minutes for each chapter and they have all these different chapters. It's good, not to cram, but for all the basics so you can develop your ideas. (Year 11 girl, S1)

Websites

The use of revision websites was more prominent among the Year 11 interviews. On a practical level the display and interactive medium seemed preferable to some pupils rather than reading through textbooks:

> I like the computer and BBC Bitesize because there are tests and things and it moves so it is more interesting and colourful. It's a real help because I can't just sit down and read through books – it drives me crazy. I can't do that all day. If I'm on the computer it is not so bad and then you can do all these self-tests which are really helpful. (Year 11 girl, S6)

Important, too, was the use of self-testing that websites offered which meant that pupils could gain immediate feedback on the questions answered:

> I use the BBC Bitesize site mainly for the questions since they mark it straight away. (Year 11 boy, S4)

8.4.6 Strategies for revision

Analysis of the interview material revealed similar perceptions among the pupils about anxiety and overload in relation to coursework and examinations. The instances when pupils spoke positively about their perceptions of coursework and examinations were rare and there was little evidence of the use of different strategies to support their studying. In considering reported ways of revising it appeared that pupils utilised approaches that were more varied.

No strategies

In some instances pupils stated simply that they did not know how to revise. It appeared that they had no strategies that they might adopt:

> I don't know how to revise. (Year 10 girl, S6)

> I'm really bad at revising. Nothing will stick in my brain. What I actually learn in the lesson, anything that, if I leave the lesson, anything that I have learned that's the end of the information that I will remember for the exam. Even if I do learn extra bits it will go by the time I'm in the exam. (Year 10 girl, S6)

Developing awareness of the use of strategies

Other pupils, while aware that there were different ways to revise, lacked the self-awareness to adopt specific strategies for revision that might be helpful to them:

> But it is hard because you know, like that everyone says like, your own way of doing it but actually finding that way, you can't actually say which way is going to work best or something else. It is just hard. (Year 10, girl, S6)

Even if pupils felt that they were able to revise, there were instances when a lack of metacognitive awareness meant that they were not able to access what they had learned during the examination:

> It's just sort of like, you can get it in your head, you know it's in there and it's frustrating when you can't get it out, even though you know it's in there, I was frustrated in the mock, because I just couldn't get it out. I got bad marks too, I got Ds. (Year 11 boy, S7)

Often pupils were aware that they found revision difficult, due to boredom:

> Because you might start revising and then you think of a hundred other things that you would rather be doing. And so you go and do them. (Year 11 boy, S2)

Rote-learning

For some pupils rote-learning strategies, illustrative of a surface approach to learning, were in evidence with little attention given to understanding, rather the aim being to remember. Here it appeared that pupils relied on reading and copying out notes as their main strategies.

> I just do the general read it, then cover it, then try and write it out again or remember it in your head and I will just do that for every subject all the time. (Year 10 girl, S6)

> Well I normally read through and I copy out notes and stuff. (Year 11 boy, S7)

Development of understanding

Some pupils reported a slightly higher level of awareness and recognised the potential benefits of putting effort into simplifying and re-working material. Once that process was complete, though, the emphasis remained on remembering material for the examination:

> I write everything down in notes. I simplify all the notes that I've got in my book and then I just re-read them over and over again. I also re-write them and find that it helps me to remember. (Year 10 girl, S6)

By the end of Year 10 a minority of pupils demonstrated a variety of revision strategies that might be indicative of a deep approach to learning in relation to the processing of material that was required, rather than simply copying out notes:

> I find it easier to tape questions and then start answering them. I've recently started doing this and it is much better for me. I started a few months ago because one of my science teachers suggested it. I also find making spider diagrams a lot easier than using lots and lots of notes. (Year 10 boy, S2)

Cue-seeking

By Year 11 there was evidence of an increase in the positive revision strategies employed. These often seemed to reflect a strategic approach to the examinations. The use of past papers for question spotting was indicative of this:

> I've also been looking at past papers to see which types of questions crop up and which questions then tend to repeat. (Year 11 girl, S3)

> They *(past papers)* are brilliant, they are just so good. I've got loads of packs. They are the best things, I think, because they get you used to how the exam is set out, what types of questions. Also, as the teachers say, the questions are the same, well they're not the same but kind of. (Year 11 girl, S6)

Development of deep approaches to understanding

By Year 11 some pupils were putting more time into organising their ideas, which seemed illustrative of a desire for understanding and a deep approach. In these

instances, while the examination was a clear focus of the work, these pupils seemed less driven to rely entirely on remembering:

> I look through all my books and I make notes which I put onto card indexes. I do this for each subject. Once I've made these notes I find that actually I've already revised quite a lot and it's really helpful to have these abbreviated notes on the cards because I can go over these just before the exam. Also I do some reading through my textbooks. (Year 11 boy, S4)

8.4.7 Time organisation and pressure

Strategic

There was variation in the overall organisation of the revision, with a recognition that the time allocated to this might vary according to the proximity of the examination. Rather than displaying an anxious concern about coping, it appeared that some of the pupils felt in control of their revision:

> When I do revision like I do it in week lengths and when I get up to the exams then I'll do day lengths and then hour lengths. So with Biology, for instance, at the beginning of the week I will read my notes through on the first night and then after that I'll make notes from my text books and the revision guides and get down the important stuff. (Year 11 boy, S4)

> I've tried a few things. The one that really works for me is to revise for a certain amount of time and then do questions based on that part of the revision. Then have a little rest and go back to revision but probably a different subject so that it will stick in my head. (Year 11 boy, S3)

Metacognition

Other pupils demonstrated a level of self-awareness in assessing which subjects they found more difficult than others and appreciated that they would need to spend more time on these:

> Also, you have to know what your weaker subjects are so that you can spend time on them. If you know that you are really good at something or something that involves a lot of coursework then you need to spend more time on the things that are difficult rather than doing the easy subjects. (Year 11 girl, S6)

Pressure

As with the pupils' perceptions of competing demands in allocating time to coursework, there was an element of subject conflict in relation to allocating revision time for different subjects:

> One of my PE teachers said I've got to revise two hours every night. It's because I got a U in the test, because I didn't really understand – I had had a lot of time off and that. So that's what it is. 'If you want to do the C grade you are going to have to do two hours a night'. No, it's all right, I'll stick with the U. (Year 11 girl, S7)

Here it appeared that the pupil's response might be perceived as ambivalence in relation to her commitment to that subject.

8.4.8 The usefulness of mock GCSEs

In considering the forthcoming GCSEs, it was apparent that internal school mock examinations had been perceived as useful to most Year 11 students. Where this was the case, of particular importance was that they seemed to have been beneficial in increasing the students' self-confidence about their ability to succeed in the actual GCSE examinations.

> I'm quite confident because like I did quite well in my mocks, so if I revise like I did for my mocks then I should be ok. If I get the grades I got in my mocks then I will be quite happy. (Year 11 boy, S3)

> I think that the mocks helped with confidence levels because you can think well I did ok in my mock in that subject. So I think it helps in relieving a bit of the stress. (Year 11 girl, S6)

The mock examinations appeared to offer students the security that they needed in relation to assessing the quality of their work:

> I felt quite unsure about some of my subjects so it was helpful to have the mocks to give me a better guide as to how I was doing. It was also useful to have the practice in similar conditions to the actual GCSEs. (Year 11 boy, S4)

For other pupils, the mock examinations were helpful in confirming their perception of how their work was progressing:

> I think I already had a pretty good idea about how I was doing in my different subjects, but to do them all at once was quite helpful and it also meant that you got some revision done. I've started revising now and the mocks were only at Christmas so I've still got quite a lot of the information in my head, which is helpful. It is also helpful to have a good indication of what you are going to get so that you can improve and also it makes you feel more confident. (Year 11 boy, S4)

8.4.9 Perceptions of teacher support for revision

Practical support

When considering the level of teacher support offered for coursework, it was evident that some pupils looked for greater scaffolding. The same was true in relation to the pupils' perceptions of the support that teachers offered in preparation for the examination. While illustrative of a concern for coping, many pupils made a request for teachers to provide them with a revision list.

> No-one gives you a list, do they of what you need to revise? Why don't they give us a list? (Year 11 boy, S2)

> They should give us a list. Like things we've learnt and things we need to revise. That is the worst thing that teachers don't do. (Year 11 girl, S6)

Furthermore, some pupils felt that teachers might support their level of understanding more effectively throughout the course if topic areas were revised after they had been completed in class:

> But what would be ideal would be like if you did a topic and then went over it. I mean not just for Science but for every subject. We just go straight onto something else. I think it would be much better if we went through it, because we don't go through it. (Year 10 girl, S1)

For some pupils, the level of insecurity felt about what and how to revise meant that they requested even more teacher support:

> The teachers should help us to revise. Like I can't sit at home and make notes, it's just write the book out again, so the teachers should help us instead of giving us just more work. (Year 10 girl, S1)

Scheduling of work

While mock examinations were generally perceived as useful, there were instances where concerns had arisen over the scheduling of the mock examinations in relation to coursework that had generated anxiety. Due to pressure of coursework, some pupils had felt unable to revise:

> But we were still having coursework, like we couldn't really revise for them. (Year 11 girl, S1)

> No-one revised for them. And some of us did really badly. (Year 11 girl, S1)

Lack of teacher direction

Many pupils had a negative perception about examinations in relation to learning. For some this was manifest in a sense of hopelessness and ambivalence, as if whatever they revised would not be relevant:

> You end up learning the wrong stuff for the exam anyway. (Year 10 girl, S6)

For other pupils the lack of a clear focus about what to revise was a source of irritation since it was perceived to be wasting their time. There was no sense of the value of revising in order to understand the material covered during the course:

> They *(the teachers)* just say revise what we've done over the year, and half the stuff you know isn't going to be in the exam. There's always that thing when you start going over something, like what if this isn't in the exam then I'm just wasting my time completely. (Year 10 boy, S2)

There were also instances where pupils had revised and had been disappointed to find that, from their perception, their hard work had been unnecessary:

> Yes, I did revise. But I got annoyed with this one teacher, because he said revise everything in the book basically and I sat and went through this book making lots of notes and then I got the test the following morning and there were only two things in there that were out of the book. Everything else was common sense. So I was sitting there reading all these books and when I got to the exam it was all about why do you need to do training, why do you need to do so and so which is basically common sense. It annoyed me. (Year 10 girl, S7)

Teacher approachability

Asking for help when uncertain is an important aspect of studying and yet it did not appear that pupils felt entirely comfortable when asking for support from teachers. As one pupil commented:

> I feel more comfortable going to friends that would know about the subject rather than teachers, because teachers sometimes look at you, sort of to say, 'what you don't know that'. (Year 10 girl, S6)

It seemed that pupils perceived teachers to be judging them unfairly if they asked for help about something that they did not understand. Either they felt reprimanded for not knowing something that the teachers felt they should:

> Some teachers are quite intimidating as well, so you don't feel comfortable in saying anything to them really, so you get a bit scared to put your hand up in case they just blow up at you. (Year 10 girl, S6)

Or that the lack of understanding was due to inattention:

> Like when you said you didn't understand they didn't assume that it was because you weren't paying attention. (Year 11 girl, S1)

8.5 Preference for coursework or examinations

While pupils, in both years, had expressed concerns about coursework in relation to overload, time management, and uncertainty about the requirements, when asked about coursework in comparison to examinations the clear preference was for coursework. In some instances it seemed that the preference was related to time: simply having the time to complete coursework rather than the time-limited nature of the examination and also being able to complete coursework at home.

> And also you can like spread the time out as well. With the exams it's like three hours in the hall just sitting there. (Year 10 boy, S2)

> I probably prefer coursework because you can like do it at home and stuff. (Year 11 boy, S2)

Viewed positively, some pupils felt that coursework provided more opportunities to learn; they valued the feedback provided by teachers and wished to improve:

> I don't know, because with coursework like, you can build up and you can learn. But with exams you just go in and just do what you do. (Year 10, boy, S3)

In some instances it was hoped that coursework would relieve some of the pressure associated with the end of course examinations:

> I think coursework is good, it's a good idea because you can get most of the questions and the answers in the classroom and it like gives you a head start and you've already got so many of the marks when you go in (*to the exam*). (Year 10 boy, S3)

Pupils also expressed the concern that they did not achieve their best in the examination:

> I don't think there's any point in exams. Like one of the teachers was telling me it just used to be coursework for the main GCSEs. This seems so much better since there is time to go over things, to improve them whereas exams like you just do it for two hours and that's like your mark. Like you do your best in an exam but it's not your best. (Year 10 girl, S1)

8.6 Perceptions of homework

Homework overload

In considering perceptions of coursework, it was apparent that pupils, in Year 10 and 11, found difficulties in prioritising the time required for coursework and homework. As with coursework, pupils responded that there was too much homework for the time allocated:

> I don't think there's actually enough time for us to do all the homeworks. They should give us more space and time. (Year 10 boy, S3)

In contrast to perceptions of coursework, which most pupils regarded as important, pupils were less positive about the value placed on homework. In some instances, homework was simply left unfinished:

> We get set a lot but I don't always do it all. (Year 10 boy, S3)

Pupils also questioned the relevance of homework:

> Like sometimes, with homework, they give you homework because it's written on the timetable but like if there's nothing to do they still just give us homework which makes more work for us to do. They just give it to us for the sake of it when it's not relevant to the class work or anything. (Year 10 girl, S1)

Homework boredom

For some, homework was regarded as boring:

> I can't concentrate because I'm just so bored... So I don't do my homework because I get bored doing it. (Year 10 girl, S3)

Parental involvement

While some pupils disliked parental involvement in homework, some pupils reported asking members of the family for help:

> It depends what subject it is really, because my sister is in the Sixth Form now so I get some help from her. But if it's like maths or things, my Dad will help me. (Year 10 girl, S6)

8.7 Perceptions of Pressure

That pupils felt under pressure to succeed in their GCSEs emerged as an important issue in the analysis of the interview data. There was evidence that pupils felt under pressure from their parents, their schools and also when older siblings had gained success at GCSE.

8.7.1 Pressure to succeed: school pressure

In reflecting upon pressure from school, pupils commented on the need for some pressure as a means of motivation but felt that this balance was not always achieved.

> There needs to be some pressure for us to work but not too much. There's just too much pressure here. (Year 10 boy, S2)

> Schools, I think, create quite a bit of pressure. They always tell you, 'Oh we have high expectations of this year' to get these marks and then they compare us to other years and say what marks they got. It's really demanding. They try to put you under pressure just to encourage but it's just sort of scary. (Year 10 girl, S6)

There was also a sense that, in some instances, pupils felt they were being pushed to levels that they themselves felt that they could not achieve:

> I think it's fair enough them (*the teachers*) pushing us towards higher levels but I think they're in the sky about that at the moment. Like we're not perfect students. Like we didn't pass any exams to get into the school so they shouldn't expect us to be amazing because we're not going to be. (Year 10, girl, S3)

> Because some of us aren't up to that standard and we're feeling really pushed and sometimes you can't deal with that. Like if you don't or can't get to that A standard then you just feel disappointed like you're letting people down because they expect so much of you. (Year 11 girl, S1)

8.7.2 Pressure to succeed: parental pressure

Monitoring of work

For some pupils, there was evidence of pressure from parents that manifests itself in practical terms in the monitoring of homework completed or in insisting on attendance at revision classes:

> Yes, every night, 'Can I see your diary please?' Yes, Ok and then it's like, 'You haven't done this homework.' Right. (Year 10 boy, S3)

> My mum is making me come to Easter revision classes. She said if you don't go to these revision classes you're grounded for two months. (Year 11 boy, S7)

Sibling comparison

For other pupils, parental pressure took the form of comparison with other siblings or from the older siblings themselves:

> There is quite a lot of pressure from my family and lots of comparisons with my brother. (Year 10 boy, S4)

I get more pressure from my sister because she got 9 A stars and 3 As which is horrible. I'm meant to beat her! (Year 11 boy, S4)

Concerns for the future

Among some parents it appeared that the benchmark of attaining five good GCSE grades was important:

My parents are ok as long as I get 5 Cs. (Year 11 boy, S3)

8.7.3 Pressure to succeed: individual pressure

Self-motivation

Pupils were aware that they put themselves under pressure:

I get pressure from myself because I'm very hard on myself but I don't actually get it from anybody else. I know everyone's individual and some people get more. (Year 10 girl, S6)

And just like, because you have hopes of what you would like to achieve and you're like if I don't get there and it's the pressure of getting what you want. (Year 11 girl, S6)

Stress

There was evidence, too, that pupils felt pressured by the seemingly continuous nature of scheduled assessment within the current English educational system. Of note was that pupils felt this pressure in their first year of the GCSE course:

We had SATs last year and we had to do work for them and then you don't get a year's break. Then again after next year you don't get any break because you've got to do AS Levels then A Levels and then university. It just doesn't stop. There's never any time for a break. (Year 10 girl, S3)

> It also seems as if the pressure is never going to stop – like one big pressure cauldron, because after GCSEs it's A Levels and more pressure and then it's university and more pressure and then it's work and more pressure. It just doesn't stop. (Year 10 boy, S2)

8.8 Changes in perception of studying for GCSE between Year 10 and 11

8.8.1 Perceptions of coursework and examinations between Year 10 and 11

In considering how pupils might change their perception of coursework during the two-year course, there appeared few differences. In both years pupils expressed concerns about overload, scheduling of the work, the level of teacher support and guidance, and the conflict that arose with the competing demands of coursework and homework. There were, though, additional concerns that were manifest in Year 11.

With the GCSE examinations nearing, pupils voiced a concern about balancing time to redo coursework with the need to revise:

> But this year you like get the chance to go over some of it (*coursework*) and to improve on it but you think I could have been doing some more revision rather than have to redo parts of my coursework. (Year 11 girl, S3)

> I was thinking of starting my revision this week but because of the science coursework I haven't been able to do this. (Year 11 boy, S4)

Of note was the change in perspective about the level of work in Year 10 when pupils were interviewed again in Year 11. Although, while in Year 10 pupils had expressed concerns about coursework overload and the difficulties in balancing time for homework and examination preparation, these seemed more acute in Year 11:

> Like with all the coursework and the revising there is much more this year. (Year 11 boy, S3)

> I think we should have done more work *(in Year 10)* so that it was spread out over the two years... Now, it is really pressured. (Year 11 girl, S6)

8.8.2 Sense of anticipated change from Year 10 to Year 11

The interviews in Year 10 enabled pupils to reflect on any perceived differences in their perceptions of studying for GCSE that might be present when in Year 11. Most pupils felt that there would be less pressure in Year 11, in part, due to a belief that most coursework would have been completed.

> From what they've said we've got less coursework to do which is better. (Year 10 boy, S4)

> They've said it's mainly redoing the coursework we've done already, writing it up and making it better. (Year 10 boy, S3)

> But then it should make it easier for next year because we've done so much coursework already. (Year 10 boy, S2)

For some pupils there was a perception that in Year 11 the main focus would be on the examinations and going over work that they had already completed:

> I think it might be easier because it's like just going over stuff we already know. So we've got more time. (Year 10 boy, S4)

> And like it's just mainly exams as well. (Year 10 boy, S3)

By contrast, a few pupils felt that Year 11 would be harder than Year 10. It seemed that for these pupils, there was an awareness that they may not have worked hard enough:

I think that at the end of this term when we get our marks it will kick in for us about how hard we have to work next year. It will kick into us once we get our marks back. (Year 10 boy, S7)

It might be harder. They might pressure you more to get your coursework in on time. (Year 10 girl, S7)

No, we are working but not as hard as we're going to have to later on. (Year 10 girl, S1)

8.8.3 Looking back from Year 11 to Year 10

The most common theme arising when pupils reflected on the differences between Year 10 and Year 11 related to their perceptions of an increase in the level of pressure:

There's just so much pressure. (Year 11 girl, S3)

It's getting a rush now 'cos were coming so close to GCSEs. (Year 11 boy, S7)

Overload

Apart from a sense of pressure related to the immediacy of the end of the course, pressure was also reflected in relation to the volume of work:

There is a lot more revision this year, going back over everything you have done and just checking. (Year 11 boy, S3)

Like with all the coursework and the revising there is much more this year. (Year 11 boy, S3)

the fact that coursework was final and no longer a draft:

> Last year, even with coursework it was like first draft and so you weren't that worried. But now, everything this year is final and so you get a lot more stress and a lot more pressure. (Year 11 girl, S6)

and there were ramifications for social time:

> There is some time for a social life but not as much. (Year 11 boy, S3)

> There's a big difference from like when you started school you could be out all the time. Now, it's probably limited to the weekend and that's it. (Year 11 boy, S3)

Pressure from high stake examinations

Differences between pupils in Year 10 and Year 11 were apparent also due to the need for pupils to achieve certain grades at GCSE in order to progress to their next level of education. For some, this was an additional source of pressure:

> Also it is pressure from your college. Like if you want to go to college you have to get certain marks. Like if you want to do certain subjects you have to get good grades for them so that adds to the pressure. (Year 11 girl, S6)

> If I don't get the grades I want, I think I'll be bummed for days. I'll be like sitting on my bed on my own, I won't bother getting out of bed, I'll be just laying in bed for about three days, 'cos I really wanna do that course. (Year 11 boy, S7)

Effort and motivation

For some Year 11 pupils there was an awareness of the increased effort they were now putting into their studies, which necessitated change in their approach:

> I am so totally different. I'm taking it really seriously. (Year 11 boy, S4)

> Like because I didn't do any work in Year 10. (Year 11 girl, S1)

> What's strange though is that in Year 10 the GCSEs seem miles away and then when you get into Year 11 they seem really close. I think I've done more work this year and I've done more revision – it sort of steps up. (Year 11 boy, S4)

8.8.4 Advice for new GCSE students

During the Year 11 interviews the pupils were given the opportunity to consider what advice would be useful to students beginning the GCSE course. Most focused on the need to work hard in Year 10 since it appeared that some students felt that they could have put more effort into Year 10.

Time management

Some reported on the need to manage time effectively and of the need to be organised. Here pupils recognised that the work completed in Year 10 made a real contribution to the GCSE:

> Plan your time throughout the two years and don't just cruise through Year 10 because it contributes a lot to Year 11. You can lose a lot of marks in Year 10 if you don't work because there must be a huge percentage of your entire grades relating to Year 10. (Year 11 boy, S4)

> I also think that you have to be organised and keep organised. So if you get given sheets in Year 10 you still have them in the right places when you need them for revision in Year 11. (Year 11 boy, S4)

Effort

Others felt that the need to work hard was important in order to achieve of your best:

> To work hard in Year 10. Don't think like I've got two years to do my coursework. Work hard on the coursework then and do it to your best standard so that in Year 11 you haven't got much more to do and then you can spend more time revising and have some time for yourself. (Year 11 girl, S3)

The role played by coursework was also recognised:

> It really helps before the exams to know that you have a good base with your coursework and so it is good to take each piece at a time and do the best that you can. (Year 11 boy, S4)

> Do the coursework as soon as possible and get rid of it so that there is more time to revise. (Year 11 boy, S3)

8.8.5 Year 11 regrets about Year 10

Working harder

Despite reporting that Year 10 was pressured, particularly in relation to the demands of coursework, when in Year 11 many pupils reported that they wished they had worked harder in Year 10 to relieve some of the pressure that they now felt. In some instances it was felt that had this been the case, then their work may have been of a higher standard:

> Like if we had worked harder in Year 10 then we might not have as much work to do now. (Year 11 girl, S1)

> Yeah, everybody was really laid back last year. And they were like, whatever. (Year 11 boy, S7)

> Like it hits you at the beginning of Year 11. Like in Year 10 when you start you think well I've got two years to do this but then you always do it at the end when you're in Year 11. Wish I'd done it before. (Year 11 girl, S3)

> I don't think I worked hard enough in Year 10. I reckon I could have done a bit better if I look back on it. (Year 11 boy, S3)

Teacher support and management

While some pupils took ownership of the amount of the work that they had completed in Year 10, others perceived the teachers to have a larger role in this in relation to the scheduling of work, in conveying what would be required and also in the pace of work in Year 10.

> It seems as if they (*the teachers*) were quite casual about it in Year 10, like they didn't really mind if we weren't doing very much work... I think they should have emphasised more in Year 10 like how much work there actually is. Like how much coursework there is. (Year 11 girl, S6)

> But I also think that they (*the teachers*) should do a lot of the coursework in Year 10. Because I think you could easily do a lot of the coursework in Year 10 and study more of the syllabus in Year 11. (Year 11 girl, S1)

Pupils also questioned the nature of some of the activities that they had taken part in, as if the backwash effect of the examination demanded a more strategic perspective that focused exclusively on the final examination rather than wider opportunities for learning:

> I also think that some of the work we did in Year 10 was quite irrelevant. Because sometimes we spent hours doing something like a poster and projects which had nothing to do with our GCSEs. It just seems like such a waste. I would have much preferred to do all the things that I am doing now back then instead of the worthless things. (Year 11 girl, S6)

8.9 Summary of key findings

Pupils in Years 10 and 11 were concerned about overload in relation to coursework and the level of practical support offered by teachers for coursework and examinations. Time management was a particular concern, especially in relation to balancing the requirements of coursework, homework and examination preparation. In both years pupils expressed uncertainty about the demands of coursework and examinations. Pupils perceived GCSE examinations to foster an emphasis on rote-learning, which, for some, led to the adoption of a strategic approach to the examinations in the use of past papers and question spotting. By Year 11 some pupils had begun to question the value of coursework and the relevance of homework. Pupils in Year 11 perceived themselves to be under greater pressure than when in Year 10: this due to overload and the need to achieve certain grades at GCSE in order to progress to their next level of education. Apparent was that the key themes of overload, pressure and concern about the level of teacher support (see 8.2) were seen in relation to coursework, examinations, homework, time management and success at GCSE.

CHAPTER 9: DISCUSSION

9.1 Introduction

This research sought to explore whether perceptions of studying at GCSE level could be described; whether there was a relationship between perceptions of studying and examination performance at GCSE level and whether perceptions of studying changed over time as pupils progressed towards the end of their GSCE course. In this final chapter, each research question will be discussed in turn and consideration given to limitations within the research. To conclude, educational implications and recommendations arising from the research findings are presented.

9.2 Students' perceptions of studying for GCSE

The main issues relating to studying for the different aspects of the GCSE, as perceived by the students, in relation to coursework, examinations, studying, homework and research, which emerged in the study, are presented in Table 103.

Table 103: Students' perceptions of studying for the different aspects of GCSEs

Positive perceptions	Negative perceptions
Coursework fostered and rewarded: • the opportunity to explore ideas; • effort; • the benefits of checking work; • discussing work with friends. Coursework was perceived as a fair means of assessment	**Coursework gave rise to:** • uncertainty about coursework requirements; • issues of time management; • issues with scheduling of deadlines; • overload; • a lack of teacher support.
Examinations fostered and rewarded: • testing oneself when revising; • checking for understanding (not all pupils); • varying the amount of revision according to subject difficulty (not all pupils); • the use of additional resources.	**Examinations gave rise to:** • anxiety; • pressure; • uncertainty about how or what to revise; • a lack of teacher support. Examinations fostered rote-learning with little value placed on student notes.
Studying for GCSE fostered and rewarded: • the benefits of re-reading for understanding; • awareness of not understanding; • the value of effort for understanding; • the use of teacher feedback.	**Studying gave rise to:** • time management difficulties; • uncertainty about assessing the quality of work.
Homework fostered and rewarded: • the use of time management strategies e.g. taking regular breaks; • positive attempts to plan homework for the next day	**Homework gave rise to:** • difficulties with the variability of homework; • pressure from the volume of homework; • issues with the relevance of homework.
Carrying out research fostered and rewarded: • the use of the Internet as a research tool; • the use of books as a research tool; • reading more about areas of interest.	**Understanding research gave rise to:** • difficulties in seeking help from teachers; • difficulties with summarising notes and synthesizing information; • a lack of confidence in independent learning in some students.

Each of these will now be discussed in turn.

9.2.1 Coursework

The questionnaire responses indicated that pupils in Year 10 and 11 were concerned with the volume of coursework, were anxious about coursework in general and anxious about the specific requirements of coursework. They perceived themselves to have to work very hard in the final stages of completing their coursework. This sense of overload came through strongly in the interviews and is a concern given that overload leads students to adopt a surface approach to studying (Entwistle, 1991). Students' perceptions of overload in relation to coursework appeared not to have changed since the introduction of the GCSE (DES, 1988; Bishop et al., 1997). The concerns expressed in relation to understanding the requirements of coursework also echoed earlier findings (Denscombe, 2000; Weeden et al., 2000).

Pupils seemed to value coursework, and there were indications in accord with Bishop et al. (1999) that coursework, in comparison to examinations, was perceived as a fair means of assessment. The questionnaire responses indicated that most pupils found it helpful to discuss coursework with friends and, for some pupils, coursework was valued for the freedom it offered in exploring individual ideas. In relation to effort management, pupils in both years were aware of putting more effort into coursework than other work and felt that it was important to check coursework drafts with care. This aspect of the GCSE is important, since, unlike examinations, the potential to redraft coursework affords the possibility of formative assessment that could foster a meaningful perception of studying with understanding rather than perceiving studying to be about rote-learning. While this seemed true for some pupils, in the interviews many drew attention to other issues that complicated this process. In some instances, the return of coursework drafts was delayed to such an extent that pupils no longer recalled the aims of the piece of work. Students also reported a cascade effect whereby,

although coursework was returned, there was insufficient time to make changes due to conflicting demands from other subjects.

In particular, many students felt themselves to have no control over their coursework; critical here was the perceived support offered by teachers. Concerns about the requirements of coursework drew attention to the importance of the role that teachers hold in facilitating the understanding of the coursework requirements; some pupils expressed the need for greater support. Internal school deadlines for coursework were a further issue, again with perceived control lying with teachers. Pupils reported difficulties in prioritising their work, particularly when teachers moved deadlines, since this impacted on their ability to manage the time required for coursework and homework. While some pupils responded by adopting a strategic approach to balancing their coursework and homework, for others the impact was detrimental and led towards an ambivalent approach to their work, whereby they lost interest in wishing to improve.

9.2.2 Examinations

As with coursework, a major preoccupation of the students related to overload and the volume of material to be revised. Students found examinations to be anxiety provoking; this was due to the unpredictable content and a real uncertainty about what to revise, the formality of the examination environment and the pressure evoked by a single assessment that was deemed pivotal to success. These findings supported previous research (Denscombe, 2000). While anxiety is not always detrimental to performance, the high levels of anxiety reported by some students appeared to push them towards a surface approach to studying for their examinations in the manner found among higher education students (Entwistle, 1988b; Fransson, 1977).

Of particular interest was consideration of pupils' experiences of revising: this in relation to the use of revision guides and notes, strategies for revising and the perceived support from teachers. On a superficial level the high mean values returned from the questionnaire data in Years 10 and 11 indicated some metacognitive awareness, effort management and strategy use among pupils in preparation for examinations that appeared positive. Thus, for instance, pupils were aware of the importance of testing oneself when revising, checking for understanding and varying the amount of revision according to the perceived difficulty or ease of the subject; this, though, was not true of all pupils. The interviews afforded further insight. For the most part, the backwash effect of GCSE examinations was perceived to foster an emphasis on rote-learning, whereby the emphasis was placed on the need to memorise facts for repetition in the examination. Most students did not appear to adopt a process of deep memorisation (Tang, 1991; 1994) where the intention was to memorise with understanding; rather the emphasis was placed on memorising in order to reproduce. Some students, with a higher level of metacognitive awareness, acknowledged the importance of processing material rather than simply copying out notes, but for many this resulted in a strategic approach to the examinations reliant on the use of question spotting and past papers in the manner similar to the cue-seekers identified by Miller and Parlett (1974).

That pupils perceived their notes made during the two-year course to be of no use, since they were disorganised, incomplete and messy, was a cause for concern. From the interviews it was apparent that the majority of pupils would turn to revision guides as their main source of revision material. The quantitative data showed revision guides to be perceived as a useful resource in both years, although significantly more so in Year 11. It could be argued that this use of additional resources was a positive strategy in which pupils sought to take ownership of their revision. However, in the interviews it

appeared that most used revision guides as an alternative to their notes, valued the fact that all information was summarised for them and thus they would not have to put meaningful effort into summarising information in the manner captured by a deep approach to understanding. Rather the use of revision guides appeared to support a strategic approach to studying.

Teacher support and approachability was a concern for many pupils. Many pupils were uncertain about what to revise or how to revise, and yet practical requests from pupils, such as the provision of revision lists, seemed to be ignored.

9.2.3 Studying

Year 10 and 11 pupils demonstrated metacognitive awareness with regard to the need to re-read material for understanding. The findings from the questionnaires indicated that pupils were aware when they failed to understand and recognised the importance of effort to improve understanding. The quantitative responses suggested that the feedback from teachers was valued; however, the pupils themselves were uncertain about how to assess the quality of their work. The suggestion that teachers might make greater use of self-assessment as a strategy to support the learning process seemed warranted (Weeden, et al., 1999; 2000).

Time management was of critical concern for Year 10 and 11 pupils. As previously discussed, pupils found it difficult to manage the time required for coursework and were concerned with the volume of material to be revised for the terminal examinations. In addition, some pupils indicated that it was difficult to find time to relax each evening and that they had to cancel seeing friends due to too much work.

9.2.4 Homework

Both Year 10 and 11 pupils perceived themselves to utilise time-management strategies in relation to homework with respect to taking regular breaks when completing homework and in attempting to plan their homework, especially in relation to work that needed to be completed for the next day. Both groups of students perceived real difficulties with the variation in the amount of homework set, which made it difficult to plan homework and the long hours that they were required to work on some occasions to complete their homework. Although recognising that Year 10 and 11 pupils have a lot of homework related to the GCSE (Ofsted, 1995) it appeared that earlier difficulties arising from the variability in homework set have not been resolved (DfEE, 1998; MacBeath and Turner, 1990; Weston, 1999); as when the GCSE was introduced, homework suffered if it was not linked to coursework (DES, 1988). In the interviews, pupils' questioned the relevance of homework, felt pressurised by the volume of homework and were uncertain how to prioritise homework in relation to coursework. For some, homework was simply boring. The relationship between time spent on homework and success at GCSE will be discussed later.

9.2.5 Research

Given the high importance placed on the use of home computers for coursework, the value placed on the Internet for research amongst the Year 10 and 11 pupils was anticipated. Books, too, were valued; however, both groups of pupils were less likely to use the library. Relevant is that access to home resources accentuates socio-economic differences between pupils in relation to homework (Hallam, 2004). Here the percentage increase in access to home computers, own home computers and Internet access within the Year 10 and 11 cohorts was significant.

Some pupils in both years perceived themselves to read more about areas of interest, which is perhaps indicative of a deep approach and the quest for understanding; this, though, was not apparent in the interviews. The questionnaire responses had suggested that the Year 10 and 11 pupils were aware of the need to ask for help when unsure. However, of issue was the source of help and whether this was friends, parents or teachers. During the interviews it was apparent that in considering coursework or examinations, pupils were not always comfortable in asking for help from their teachers. In some instances teachers were perceived to be unapproachable, intimidating, judgemental in relation to understanding and unwilling to offer practical help. Asking for help is an important strategy and yet, as in previous studies, it seemed that pupils were reluctant to seek support from their teachers (Chaplain, 2000; Sharp et al., 2002), preferring instead to seek the support of their peers or sometimes their parents.

In both year groups pupils perceived themselves to have difficulties with specific research techniques associated with the GCSE. These included the ability to summarise information and the possible anxiety associated with making lots of notes about a topic before feeling sufficiently confident to write an essay. The reliance on revision guides added weight to the lack of confidence that students expressed about their ability to synthesize information, and was borne out in the analysis of the interview material. Independence in learning is important when studying for the GCSE (Weeden et al., 1999), especially perhaps in relation to coursework and homework. Here it appeared that many pupils lacked confidence in their ability to learn independently.

9.2.6 Key issues arising from pupils' perceptions of studying for GCSE

While the previous sections looked at students' perceptions of different aspects of studying for their GCSEs, what is apparent is that key concerns arose that overarched

the discrete assessment components. Time management and overload were a central concern for pupils that impacted on their examination preparation, their coursework and the prioritising of homework. As illustrated by the interview data, overload often gave rise to high levels of stress. The support and scaffolding offered by teachers was a further concern, with pupils' perceptions being that they needed more support, that they did not always understand what was required and that teachers were not always approachable. Critical here was the notion of control, since in many instances pupils perceived themselves to have little ownership over their studying for GCSE especially in relation to the volume of work scheduled, the time when work was required, the variability of homework set or conflicting subject demands.

For the majority of students, GCSE was perceived to focus on the examination component as being pivotal to success. This in itself might not be detrimental; however, the backwash effect of assessment is such that pupils learn what they think they will be tested on (Biggs, 2003). With regard to the GCSE, the pupils' perception was that the examinations were about rote-learning facts rather than learning for understanding.

9.3 Underlying characteristics in perceptions of studying

Factor analysis of the data from the Year 10 and 11 cohorts enabled consideration of the underlying characteristics of perceptions of studying for GCSE (see chapter 6). A four factor solution was deemed the most meaningful for Year 10 students, while among the Year 11 pupil responses, a five factor solution was proposed. The high correlations found between the four factors identified in Year 10 with those in Year 11 suggested that these were consistent characteristics of pupils' perceptions of studying for GCSE.

The additional factor present in Year 11 did not correlate strongly with any of the other factors.

The four common factors were named self-management, anxiety, understanding and ambivalence. The fifth factor, associated with Year 11, was named wider interest. The factors are important since they offer a framework for understanding students' perceptions of studying for their GCSEs. What was more important, however, was that the factors identified here, in relation to students' perceptions of studying for GCSE, mirrored, to an extent, those identified among students in higher education in their generalised approaches to studying. Early research had suggested that there was no reason why the different approaches to studying seen among higher education students should not be present among secondary school pupils (Entwistle, 1988a); however, research efforts have been few and where undertaken have been limited in scope. The contribution made by this research has been to demonstrate that perceptions of studying for GCSEs among secondary students are similar to those found among higher education students. Table 104 maps the factors identified in this research with those identified by Tait and Entwistle (1996) among higher education students.

The understanding factor has parallels with the deep approach in the emphasis placed on an active interest in studying and the quest for meaning and understanding. The anxiety factor corresponds with the surface approach to studying in the concern about coping and the lack of effective strategies. The self-management factor is consistent with the strategic approach to studying in the use of effort management and the strategic use of time, planning and organisation. The ambivalence factor mirrors the characteristics associated with lack of direction with regard to minimal effort and lack of interest.

Finally, the wider interest factor has some similarities with the self-confident academic aptitude found in academic self-confidence.

Table 104: Comparison of Year 10 and 11 factors with Tait and Entwistle (1996)

Year 10 and 11 factors	Tait and Entwistle (1996)
Understanding	**Deep approach**
• Importance placed on understanding • Active self-help strategies • Active interest	• Looking for meaning • Active interest/critical stance • Relating and organising ideas • Using evidence and logic
Anxiety	**Surface approach**
• Concern with overload • Concern about coping • Difficulty in making sense of ideas	• Relying on memorisation • Difficulty in making sense of ideas • Unrelatedness • Concern about coping
Self-management	**Strategic approach**
Strategic management of: • resources • time • planning • organisation	• Determination to excel • Effort in studying • Organised studying • Time management
Ambivalence	**Lack of direction**
• Minimal effort put into studying • Lack of interest	• Lack of interest • Lack of direction
Wider interest	**Academic self-confidence**
• Self-confidence • Preference for exploring own ideas	

9.4 Perceptions of studying: student topologies

In contrast to factor analysis, which dealt with groupings of variables, the cluster analyses (see chapter 7) enabled groups of students to be classified according to their study topology, in the manner adopted by Pintrich (1989). The value of the clusters is that they relate to actual students rather than dimensions of studying. That high levels of predictive cluster membership were demonstrated among the Year 10 and 11 students added to the robustness of the six cluster solutions. The clusters differed according to the use of self-regulatory strategies, metacognitive strategies, value and interest in the course, effort management strategies and anxiety levels (see Table 105).

In Year 10, three clusters, namely, clusters 4, 5 and 6 appeared to be 'good enough' students, although cluster 6 was less hard working. Clusters 5 and 6 both demonstrated positive strategy use, although that associated with cluster 6 was more indicative of a strategic approach to studying. By contrast, clusters 1, 2 and 3 were poor in the use of active self-regulatory strategies: this, though, deriving from different motivations. Cluster 3 appeared similar to the traditionally poor students identified by Pintrich (1989), in that they lacked interest in the course and were disengaged from their studies. Cluster 1 were not overly anxious but put little effort into checking coursework or revising; by contrast, cluster 2 were concerned about overload but lacked the necessary planning skills.

Table 105: Characteristics of the Year 10 and 11 cluster groups

Year 10 cluster groups	*Year 11 cluster groups*
Cluster 1 Not overly anxious but lacking positive interest in checking and revising	**Cluster 1** Poor time management, little control over task demands
Cluster 2 Lack of planning, time management and effort	**Cluster 2** Hard working students but with high anxiety, lack confidence in ability
Cluster 3 Poor students: disengaged and lacking interest	**Cluster 3** Poor students: little directed effort into work
Cluster 4 Hard working students but with high levels of anxiety	**Cluster 4** Reasonable students with lots of self-checking strategies
Cluster 5 Hard working students with effective strategy use	**Cluster 5** Hard workings students with effective strategy use
Cluster 6 Self-aware, use of strategic strategies but over confident	**Cluster 6** Minimum effort, not anxious, lack of interest

The Year 11 clusters were slightly different from those identified in Year 10, which was anticipated given that a new factor had been identified in the Year 11 factor analysis. There were, though, some similarities. As with Year 10, in Year 11 a cluster of poor students was identified, characterised by little interest and directed effort into their work. Clusters 2 and 5 appeared similar to clusters 4 and 5 identified within Year 10. Among the Year 11 students, these were two quite distinguishable groups of hard

working students: one, though, lacking in confidence and with high anxiety (cluster 2) and the other with effective strategy use (cluster 5). In both years there was a cluster that displayed poor time management: cluster 1 in Year 11 and cluster 2 in Year 10. Similarly, cluster 4 in Year 11 shared the same use of self-checking strategies seen with cluster 6 in Year 10. Finally, the Year 11 cluster 6 demonstrated the lack of interest and anxiety seen with cluster 1 in Year 10.

There was no attempt to assert that students fell into the same clusters in each part of the analysis. Indeed, evidence from the interviews tells against this since some students reported making a conscientious effort to adapt their studying in Year 11 by increasing the amount of effort and time spent; others, by contrast, appeared to become more ambivalent about the effort put into their GCSEs, for instance, by neglecting to make changes to coursework drafts. Relevant are the differences between membership of the different clusters groups and attainment at GCSE; this will be discussed later.

9.5 The relationship between perceptions of studying and examination performance at GCSE

9.5.1 The relationship between prior knowledge, reported homework hours and attainment at GCSE

Multiple regression analysis confirmed the importance of the relationship between prior knowledge, as measured by average SATs score, and attainment at GCSE. Significant, too, was the amount of time that pupils reported spending on their homework, although the contribution made was small. There was a positive relationship between reported homework hours each week and success at GCSE. While this initially appeared to lend support to research by Cooper (1989a; 1989b) and Tymms and Fitz-Gibbon (1992), further analysis of reported homework hours and GCSE attainment in relation to prior

attainment, factors and cluster group membership indicated that such an interpretation was too simplistic. Rather a more complex relationship was in operation: this will be discussed later.

9.5.2 The impact of the different factors on attainment at GCSE

The two factors, ambivalence and understanding, made a significant contribution to all models that explored the impact of the different factors on average GCSE point score in Year 10 and 11. The ambivalence factor made the greatest contribution to the model but at all times the beta weight was negative, indicating a negative relationship with average GCSE point score. An increase in the ambivalence factor, as characterised by a lack of interest and disengagement, gave rise to a decrease in average GCSE point score.

In contrast, the beta weights for the understanding factor were positive, indicating a positive relationship with average GCSE points score in Year 10 and 11. Hence, an increase in understanding factor, as characterised by an emphasis on meaning and active interest in learning, gave rise to an increase in average GCSE point score. While this research focused on perceptions of studying for GCSE, research in higher education has shown that higher academic performance is associated with the adoption of a deep approach to studying (Svensson, 1977; Biggs, 1979; 1987; Trigwell and Prosser, 1991; Prosser and Trigwell, 1999; Ramsden, 2003). It would appear that, as in higher education, when GCSE pupils perceive studying to be about seeking understanding, this is associated with higher academic performance.

The anxiety factor, identified earlier as sharing some similarities with the surface approach to studying, was strongly related to the average GCSE point score in Year 11

but not in Year 10. The beta weight indicated a positive, but low, relationship whereby an increase in the anxiety factor was associated with an increase in average GCSE point score. It appeared that among the Year 11 students some anxiety was helpful. This, though, tells against research findings in higher education that have demonstrated that a surface approach to studying is associated with lower academic performance. There are several possible explanations for this.

It may simply be that some anxiety is useful for performance and that only high levels of anxiety are problematic. Among the Year 11 students, low levels of anxiety may have increased arousal levels to an optimal level of arousal whereby performance was enhanced (Yerkes-Dodson Law, Yerkes and Dodson,1908). Indeed, during the interviews some Year 11 pupils reported that they had been quite 'laid-back' in Year 10 and that subsequently they needed to work harder. The proximity of the examinations in Year 11 might also have generated some anxiety that motivated the students, since many were concerned with gaining the examination grades that they needed to progress to the next stage of their education. During the interviews it was apparent that the Year 11 pupils felt under more pressure than when in Year 10. There might also be some trade-off between the anxiety and ambivalent factors, given the indications from the interviews that some students, as a result of perceptions of overload, tended towards adopting an ambivalent approach whereby they ceased to care about making changes to coursework or the additional time required for revision. Relevant, too, is that all Year 11 pupils are required to remain in education with the intention that most sit GCSEs, in contrast to higher education where participation is voluntary. The ambivalent factor, as characterised by lack of interest, might therefore be more important within compulsory GCSE education and may be less present in higher education.

The contribution made by the self-management factor, associated with a strategic approach to studying, to average GCSE point score, was not significant in Year 10 or Year 11. It seems that there is some trade-off here in relation to the amount of homework hours that pupils reported completing; this will be discussed later.

The wider interest factor was strongly related to average GCSE point score in Year 11, but the negative beta weight implied a negative relationship whereby an increase in the wider interest factor, as illustrated by self-confidence and a preference to explore one's own ideas, gave rise to a decrease in average GCSE point score. Within the context of the GCSE and the specific assessment demands that are made, it would appear that students displaying wider interest characteristics were disadvantaged.

9.5.3 The impact of the different factors and reported homework hours each week

The ambivalence factor was significantly related to reported homework hours each week in both Year 10 and 11. In all instances, this factor gave rise to a negative beta weight, indicating a negative relationship with reported homework hours.
Where the perception of studying was that of ambivalence, this was associated with lower levels of reported homework.

Both the understanding and self-management factors were significantly and positively related to reported homework hours each week in both Year 10 and 11. Where students perceived studying for their GCSEs to be about understanding or about managing their resources there was an increase in reported homework hours. Neither the anxiety factor nor the wider interest factor was related to reported weekly homework hours.

9.5.4 The interplay between the different factors, attainment at GCSE, SATs score and homework

The characteristics associated with the ambivalent and understanding factors appear most straightforward to interpret. The ambivalent factor was negatively associated with attainment at GCSE and reported homework hours. When prior knowledge, as measured by SATs scores, was also considered, the ambivalent factor continued to have a negative impact on GCSE attainment. The opposite was true of the understanding factor: a positive relationship held with GCSE attainment and homework hours when taking account of previous attainment. The anxiety factor, too, revealed a positive relationship with GCSE attainment when prior attainment was considered among the Year 11 students. As previously suggested, this may relate to the proximity of examinations whereby some anxiety was beneficial to performance.

More complex was the interpretation of the self-management factor, since this was closely related to reported homework hours, but reported homework hours did not consistently predict GCSE attainment. Although this relationship was seen in both Year 10 and 11, pupils reported completing significantly more homework in Year 11 than in Year 10 and with slightly less variation in the amount reported. It may be that after a certain point, the quality of work completed during homework is more important than the quantity (Wilhite, 1990).

9.5.5 Differences between cluster membership and attainment at GCSE

Cluster groups identified in Year 10 and 11 represented different groups of students with different perceptions of studying, effort management strategies, value and interest in the work. While the cluster groups were different in both year groups, in each, clusters were identified that described poor students who were disengaged with their

studies and put in little effort. Other cluster groups identified hard working students but with high anxiety levels who were driven towards surface approaches to studying. Good students were also identified who had an array of strategies.

Among Year 11 students the three highest achieving clusters all contained hard working students, although they differed in their use of strategies. Cluster 2, who displayed high anxiety, were ranked second in their level of attainment. Cluster 4, who displayed many self-checking strategies, gained the highest results with cluster 5, who demonstrated effective strategy use, being ranked third. Clusters 1, 3 and 6 achieved less highly: all these clusters demonstrated poor perceptions of studying. Cluster 3, representative of poor students with little directed effort into their work, gained the poorest results. Cluster 1 students, with poor time management and little control over task demands, gained the next poorest results, followed by cluster 6 students, who had demonstrated a lack of interest, little anxiety and minimum effort. Here it appeared that those students who recognised the effort required in studying and sought to utilise some effective strategies did better than those students who did not.

In Year 10 the pattern was more complex: but this may have been related to the fact that the students were at an earlier stage of the two-year GCSE course. That said, the students in cluster 5, who displayed a hard working approach with effective strategies, gained the highest level of attainment as measured by average GCSE point score. By contrast cluster 3, who appeared poor students, and cluster 1, characterised by a lack interest and awareness of appropriate strategies, gained the poorest results. Cluster 2, seen as lacking time management skills and making little effort, gained the second highest level of attainment. Cluster 6, perceived as possibly over confident but self-

aware, were ranked third and cluster 4, characterised by hard work and anxiety, were ranked fourth.

9.5.6 The relationship between cluster membership and reported homework hours each week

At a superficial level, where clusters contained students who were disengaged with studying for their GCSE the reported homework hours were lower than among other clusters. In some instances, their GCSE results were also poorer in comparison to the other groups; however, this was not always the case.

Among Year 11 students the highest achieving clusters were 2, 4 and 5. Relevant then is that cluster 2, who displayed high anxiety, reported completing the most homework each week, closely followed by cluster 5, who demonstrated effective strategy use. Students in these clusters reported completing more than 11 hours homework each week. Cluster 4, who displayed many self-checking strategies, reported completing a mean of 9.75 homework hours each week, which is more in line with that suggested by Weston (1999). It may be that their reported homework time was spent more effectively. The remaining clusters displayed poor perceptions of studying and had achieved less highly. In considering the reported homework hours each week, clusters 3 and 6 reported the least amount of homework: both of these clusters were characterised by minimal effort in the use of strategies. Cluster 1 students, with little control over task demands, reported completing over 10½ hours homework each week.

Within the Year 10 students, cluster 5, who displayed effective strategies and gained the highest level of attainment as measured by average GCSE point score, reported completing the most homework each week with a mean of 10.89. Two other clusters

also reported completing over ten hours homework each week: clusters 4 and 6. The cluster 4 students, characterised by anxiety, appeared driven to work long hours as a result of their anxiety. Cluster 6 students, possibly over-confident but self-aware, may have engaged more in areas of interest. The three remaining clusters reported completing less than nine hours homework each week, with cluster 3, the traditionally poor students, completing the least. Clusters 3 and 1 had also gained the poorest results in relation to average GCSE point score.

9.5.7 The interplay between cluster membership, prior knowledge, attainment at GCSE and homework

The use of average SATs score as a covariate enabled consideration of prior knowledge in relation to cluster membership, reported homework hours and attainment at GCSE. When controlling for prior attainment there remained significant differences between the clusters in relation to success at GCSE and reported homework hours per week. This is important since, although it has been established that prior knowledge, as measured by SAT scores, was a significant predictor of GCSE success, it did not explain everything, since differences between the clusters remained when it was controlled for. Consideration of the adjusted means suggested a more complex interplay between perceptions of studying and attainment.

Among Year 11 students, the mean average GCSE point score ranged from 4.61 to 5.92. That for the adjusted means was from 5.11 to 5.64. The adjusted means for the highest attaining clusters (2, 4 and 5) still ranked them above the others but the difference was less marked, which suggested that, to an extent, prior attainment was accentuating the differences between the clusters in relation to GCSE success. Cluster 5 worked long hours, but had an effective array of study strategies whereby anxiety was not

detrimental to success. It is acknowledged that high attaining pupils are often given more homework (Hallam and Ireson, 2003); however, reported homework hours alone were not consistently predictive of GCSE success. Cluster 4 students had reported completing the least amount of homework within the high attaining clusters, although adopting effective self-checking strategies. For these students it appeared that successful strategy use, together with prior attainment, contributed to success at GCSE, rather than working long hours. By contrast, cluster 2 students were motivated to achieve but had seemed anxious about GCSEs and worked long hours. Evidence from their SATs results indicated that their level of prior knowledge was high. Here it seemed that the anxiety felt had driven the students to work long hours. These students had few useful coping strategies but at GCSE level had been successful partly due to prior knowledge and high effort. Whether these students, without improved strategy use and less anxiety, would continue to achieve so highly in future examinations was purely speculative. It seemed, though, that they might be over-achievers at GCSE in the manner described by Weston (1999).

With regard to clusters 1, 3 and 6 the adjusted means were higher than the original means for average GCSE point score, but still lower than those for the other clusters. Cluster 3 seemed to be poor students with little positive strategy use, completing minimal homework. The adjusted mean still ranked this cluster the lowest in relation to attainment at GCSE and it would appear that these students, even when controlling for prior knowledge, were doing less well than the other students, partly due to a lack of interest, effort and direction. The same appeared true of cluster 6. These students put little time or effort into their work and displayed poor strategy use. Cluster 1 students reported working long hours but without task management control. It may be that cluster 1 students, although willing to work long hours, lacked sufficient metacognitive

awareness to employ a variety of strategies effectively. Hence the long hours that they reported working were less productive and indicative of poor study skills in the manner suggested by Nixon and Frost (1990).

In considering the findings from the Year 10 students, there were some similarities in the patterns of the adjusted means compared to the actual means as in Year 11. Hence for the three highest achieving clusters the adjusted means were lower than the original means and for the three poorer achieving clusters, the adjusted means were higher. As before, it appeared that students with higher levels of prior knowledge were doing better at GCSE; however, statistical differences in GCSE success remained between the cluster groups that were not accounted for by prior attainment. Cluster 1 remained the lowest ranked cluster in relation to the adjusted mean for GCSE point score. These students appeared to lack motivation in the application of techniques that might support their study and completed less homework than most other clusters. It might be though that they were unaware of such strategies or of the difference that these may make. The high achieving cluster 5 students were still ranked first when looking at the adjusted mean for GCSE point score and had demonstrated effective planning and checking strategies.

9.6 Changes in perceptions of studying during the GCSE course

In broad terms, the perceptions of studying for the GCSE held among pupils, in both Years 10 and 11 were similar: repeated measures analysis revealed a significant difference for overall perceptions of examinations only. Subtler, yet important, differences, though, were present in the analysis of individual questions; these were supported by the interview data.

9.6.1 Coursework

There were few perceptions of change in relation to coursework when pupils were in Year 10 or Year 11. Through the two-year course pupils were as concerned about the time required for coursework, understanding the requirements for coursework and were as anxious about coursework. Pupils reported finding it helpful to discuss coursework with their friends, putting more effort into coursework than other work and producing several drafts before submitting the final piece of work. Pupils felt, at times, overloaded with the volume of coursework and looked for greater scaffolding from their teachers. The scheduling of internal school deadlines for the submission of coursework was a particular concern, of which many pupils were critical. That Year 11 students were as uncertain about the demands of coursework even when nearing the end of the two-year course warrants attention.

Statistically significant differences were found in relation to checking coursework drafts for improvement, the perception that coursework piles up, and the need to have to work really hard at the end. In Year 11 pupils were under more pressure to complete coursework but they were less likely to check coursework drafts for improvement than in Year 10. The qualitative findings offered some insight into this since it might be thought that in Year 11 pupils would check their coursework more carefully than in Year 10. By Year 11 some pupils appeared to reach saturation point with regard to their willingness to check and improve their coursework; they simply wanted it finished, and some reported handing it back to teachers without making any changes. Important, too, was that pupils in Year 11 had begun questioning the value of coursework; the amount of time and effort put into coursework was perceived to be disproportionate to the weighting given to the examination component. The notion that coursework might relieve some of the pressure from the terminal examinations was felt to be untrue.

9.6.2 Examinations

In both years pupils felt similarly anxious about examinations because they didn't feel that they did their best; they felt overwhelmed by the volume of the material to be revised and reported that they found it hard to memorise things. While the anxiousness associated with the final examinations was similar in both years, when in Year 11, some pupils appeared more confident in their preparation for the examination element of the GCSE than in Year 10. The statistical analysis demonstrated that in Year 11 pupils were more likely to use practice papers and past questions, to use revision guides and the Internet to assist their examination preparation. The findings from the focus group interviews supported this, with greater evidence of the use of revision strategies in Year 11 than in Year 10. Most, though, reflected a strategic approach to the examination, as illustrated by question spotting and the reliance on revision guides for summarising topics, with few students appearing to demonstrate a deep approach to understanding. While in Year 11 some pupils seemed in control of their revision, for others this was not the case; these students continued to lack awareness of any strategies that they might utilise to facilitate their revision or resorted to rote-learning illustrative of a surface approach. The level of teacher support remained an issue. Pupils expressed a need for greater scaffolding from teachers during the revision process. It seemed, though, that pupils understood little about the process of revision in relation to enhancing and consolidating understanding.

While pupils expressed continued concerns about the anxiety associated with the final examinations, overall when in Year 11 pupils responded that they were more confident in their ability to succeed in their GCSEs. It seems the school mock examinations made a strong contribution to this, since in the Year 11 interviews students reported finding the mock examinations useful, and it appeared that they had been beneficial in

increasing students' self-confidence about their ability to succeed in the actual GCSEs. While this appeared positive, a more salutary note was warranted. For some, the mock examinations offered students the security that they needed in assessing the quality of their work; it seemed a pity that this awareness came so late in the course and that pupils had to rely on this external form of assessment in order to evaluate the quality of their work. As Weeden et al., (1999; 2000) suggested, it appeared that teachers made inadequate use of self-assessment as a strategy to support the learning process.

9.6.3 Homework

Throughout the two-year course, pupils reported attempting to plan their homework so that it was manageable and that they had to work really long hours to complete homework on some occasions. Pupils in Year 11 completed an average of 10.5 hours homework each week which was significantly more than that completed in Year 10: mean 9.66 hours. These results, though, are in line with Weston (1999), who reported an average of 10 hours per week, and also confirmed the suggestion that the amount of homework rises during the GCSE course. At both stages during the course, pupils reported concerns about the variability of the amount of homework set and the impact of this on the planning of their work; statistically there were no differences between Year 10 and 11. This concurred with earlier findings on the variability of homework set within schools (MacBeath and Turner, 1990; DfEE, 1998; Weston, 1999). The qualitative findings supported this. Pupils, in Year 10 and 11, felt overloaded with the amount of homework, reporting that there was too much homework for the time allocated. The relevance of homework was questioned and, as seen with the introduction of the GCSE (DES report, 1988), pupils were less positive about the value of 'standalone' homework in comparison with homework specifically linked with coursework. Prioritising the time required for coursework and homework was difficult

and generated stress. By Year 11 pupils were more likely to complete homework in the shortest amount of time if it was not perceived to be important; the difference was statistically significant.

9.6.4 Study and research

Perceptions of changes of approach to study or research when in Year 10 and 11 were not significant. In both years pupils made an effort to improve understanding, made use of feedback from teachers, re-read for understanding and spent time being critical of their work. Even when in Year 11, some pupils remained uncertain about the quality of their work, which lends support to the findings of Weeden et al. (1999). Students continued to find it difficult to organise their work so that there was time to relax each evening. Worthy of comment was that even in the final stage of the two-year course there was no significant increase in help seeking. Asking for help has been identified as an important strategy (Weeden et al., 1999), and yet in line with Chaplain (2000), pupils reported difficulties in asking for help from their teachers. Pupils commented on the lack of teacher approachability, and perceived themselves to be judged unfairly by teachers, feeling either that they would be reprimanded for not knowing something that the teacher felt they should or that the lack of understanding was due to inattention. Many preferred to ask their friends for help.

9.7 Limitations of the research design

The focus of this research was to develop a context-related questionnaire that looked specifically at pupils' perceptions of studying for GCSE. That a self-report questionnaire was the main method of data collection affords a possible limitation to the study since in survey research there are few checks on the honesty or seriousness of responses (Robson, 1998). Furthermore, there are issues with external validity since

there is often a difference between what people say they do in a questionnaire and what they actually do in real life (Robson, 1998). In developing and piloting the questionnaire, care was taken to ensure content validity so that the questions focused specifically on studying for GCSE: the intention being that pupils would perceive the questionnaire to be relevant to their experiences. In addition, all pupils were informed about the research and assured of confidentiality. By taking these measures it was hoped that pupils would provide an honest response to the questions.

Greater validity was ensured by the use of focus group interviews, carried out during the two-year course, to explore in more depth pupils' perceptions of studying for GCSE. That the findings from the qualitative and quantitative data supported each other suggests that pupils gave honest responses when completing the questionnaire. It lends weight, too, to the overall validity of the research since the interview guides were developed on the basis of the questionnaire data. Had the key questions been inappropriate and not matched the reality of pupils' perceptions for studying for GCSE, this would have been apparent in the interviews; such was not the case. The findings, then, appear valid and could be generalised to other students studying for GCSE.

This leads to another limitation of the study since the exclusive focus on studying for GCSE limits the extent to which the findings may be generalised. It is unlikely that the findings presented here would generalise to other educational systems or qualifications for 15-16 year olds. It could be argued that a wider approach needed to be taken in this research that sought to focus on approaches to studying from a general perspective, in the manner adopted by Entwistle (1988a) and Selmes (1987). Had this been the case, then the starting point for the research would have been previous inventories assessing approaches to learning. There are, though, two problems with this suggestion. Firstly,

most research into approaches to studying has been carried out in higher education, and the few efforts that have sought to explore approaches to studying among secondary pupils were before the implementation of the GCSE. The second problem relates to the inventories used in the work of Entwistle and Selmes as these sought to measure approaches to studying: the implication being that approaches to studying are consistent, individual characteristics rather than relating to particular study contexts. Given the powerful findings on the backwash effect of assessment on learning, that students learn what they think they will be tested on, it was felt inappropriate to focus on generalised perceptions of learning. Rather the GCSE, with the different demands of coursework and examinations, was deemed the appropriate starting point for the research.

With regard to wider issues, one limitation of the research design and methodology was that social factors were ignored. This might have included teacher-pupil relationships, peer groups and the home environment. Those adopting an ethnographic perspective would be critical of this limitation, and would highlight the importance of exploring the interaction of factors and events and the embedding of the research in the social world that was being studied. Ethnographic research within education, though, has generally focused on small groups of students (Gillborn and Gipps, 1996), with the prime interest of understanding the experiences of those groups. At a fundamental level this would have restricted further the extent to which any findings could have been generalised; however, more relevant to the research questions posed in this study was that interest in this research lay not in the sample in its own right but rather in understanding the population from which it was drawn.

A further limitation of this study was the lack of involvement of teachers working with GCSE pupils. It could be argued that, rather than focus entirely on Year 10 and 11 pupils, greater consideration should have been given to the perceptions that teachers hold. Members of the teaching staff in each school could have been involved in a series of interviews to explore their perceptions of how pupils study for GCSE. This may have enabled further triangulation of the research findings since the findings from the focus group interviews, the questionnaires and the teacher interviews could have been compared and used in support of each other. It is worth noting that all schools involved in the research were provided with an interim report outlining some of the main findings from the Year 10 data. These findings were discussed with senior staff in each school and none voiced any objections. For the future, interviews could be carried out with teachers to explore how their perceptions of how pupils study for GCSE relate to the findings presented here.

Given the longitudinal nature of this research, another limitation was that of 'mortality' rate. At the onset of the research it was intended that pupils would complete the questionnaire twice: once in Year 10 and then again in Year 11. In practice this did not always happen. Some pupils completed the questionnaire in Year 10 or Year 11 only, while others completed the questionnaire twice, as anticipated. This meant that the data were analysed in two different ways. The first was to analyse the data from the different year groups separately and the second to adopt a repeated measures procedure where participants had taken part twice. Although the total number of students participating in each year was over 800, those completing the questionnaire twice totalled 646. Had the analysis been restricted to these pupils only then the use of factor analysis may have been inappropriate due to the sample size.

In developing the questionnaire attention was paid to internal reliability: the extent to which the instrument was consistent within itself. This was explored in the item analysis undertaken in relation to the pilot study. Coolican (1994) suggests that items produce higher reliability when they discriminate well between individuals. The questionnaire statements did this. External reliability, the extent to which similar results would be gained if completed on two occasions, was not considered relevant in relation to a test-retest procedure given that the questionnaire had not been designed to measure consistent approaches to studying, as with Entwistle (1988a) and Selmes (1987), but rather perceptions of studying for a particular assessment procedure: the GCSE.

In considering the make-up of the sample it might be suggested that this was skewed given the lack of representation from ethnic minorities and the small number of pupils who reported that their parents were from lower socio-economic groups. This point is acknowledged. The analysis of the data presented here did not include consideration of ethnicity, gender or socio-economic status since this was beyond the scope of the present research. These analyses will be undertaken in the future.

One final consideration lies with self-efficacy and self-esteem. While there had been no intention to explore these in this research, in retrospect some consideration of self-efficacy and self-esteem may have been useful, particularly in relation to the cluster groups and the possible relationships with the work of Pintrich (1989). The findings from the cluster groups indicate that consideration of self-efficacy and self-esteem might be important for the future.

9.8 Educational implications of the research findings

Pupils expressed a preference for coursework over examinations, and yet during the two-year course it seemed that many became disillusioned with the value given to coursework in relation to the final marks. For some this resulted in a lack of interest in checking coursework to improve, and added to the tension of balancing the time needed for revision. Pupil perceptions were that they were overloaded by coursework, that most of the control rested with the teachers and that internal coursework deadlines were poorly scheduled. That the Year 11 pupils remained uncertain about the requirements of coursework demands attention.

Examinations were perceived as anxiety provoking and yet pivotal to success. There was evidence that even in Year 11, some pupils were unaware of any revision strategies they might use, and many adopted rote-learning strategies driven by the perceived assessment demands of the GCSE. Some pupils adopted a strategic approach to their revision, perhaps encouraged by teachers, in relation to the use of past papers and question spotting. Few students showed evidence of a deep approach to studying for their examinations that was manifest by a quest for understanding and use of high-level cognitive strategies in pursuit of this.

The role of homework in relation to the GCSE appeared problematic. This research found no consistent relationship between reported homework hours and success at GCSE. While high achieving students often reported working long hours, this was not always the case. Similarly, some lower achieving students worked long hours at home. It may be that some less able pupils worked long hours due to poor strategies; similarly, some able students may have been set more homework or worked for longer due to personal interest. Homework, though, needs to be set with care since there were

indications that often the homework set was not valued by students. By Year 11 pupils were more likely to complete homework in the shortest amount of time if it was perceived to be of little value. It did not appear that homework was perceived as something that might foster understanding. The variability in the amount of homework set for GCSE was a concern for students that impacted on their ability to manage and plan their work. If pupils' perception of teachers is that they ignore school homework timetables, then additional pressure is created for students; this lessens their control over managing their learning and provides fewer opportunities for students to become self-regulated learners.

Teacher approachability and support emerged as an important theme in the research. Throughout, pupils expressed a concern for greater scaffolding from teachers in relation to coursework and examinations. The feedback from teachers was valued, although many students lacked confidence in assessing the quality of their work. The inclusion of more self-assessment to support the learning process would appear to be a valuable tool and enable students to take increased responsibility for their own learning.

Prior knowledge makes an important contribution to success and would appear to accentuate differences between students at GCSE level. What was apparent from the research findings is that where students perceived studying for GCSE to be concerned with understanding this made a positive contribution to overall achievement at GCSE. Secondary teachers need to be aware of this in the presentation of their lessons and their schemes of work, so that the teaching method and the assessment demands are aligned to create a positive effect, rather than generating a negative backwash whereby pupils perceive GCSEs to be about fact acquisition rather than understanding.

Evident was that some pupils lacked positive study strategies with which to undertake their GCSE studies. If students are to engage with their studying for GCSE so that understanding is privileged over cue-seeking and rote-learning, it is important that teachers and schools support students in the development of a range of study skills and encourage active strategy use.

9.9 Recommendations

The recent White Paper *14-19 Education and Skills* (2005) has increased the emphasis on the importance of the need for pupils to gain five or more GCSEs at grades A*-C which will include the demonstration of functional levels of English and mathematics. Within this there is an undertaking to reduce the amount of coursework for GCSE. While subsequent changes may address some of the concerns expressed by pupils in relation to coursework overload, it seems unlikely that this will address all the concerns raised in this research. On the basis of the research findings presented here, the following recommendations are made for schools and teachers working with GCSE pupils:

a) The adoption of a more transparent system in the setting of homework that encourages pupils to become self-regulated learners in the management, time allocation and prioritisation of homework;
b) Greater communication with pupils about the requirements of coursework, the support offered for coursework and the scheduling of coursework deadlines;
c) Greater communication with pupils about the requirements of examinations, the support offered for examination preparation and the relevance and value of making notes throughout the course;

d) Increased use of self-assessment so that students are encouraged in the process of understanding how to assess the quality of their work;

e) The provision of study and revision strategy support that is integrated within the curriculum so that all pupils studying for GCSE are encouraged to become versatile users of a range of study strategies;

f) Increased emphasis on studying for understanding and making meaning rather than rote-learning or cue-seeking.

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APPENDICES

Appendix 1: The previous version of the questionnaire and instructions

Approaches to GCSE coursework and examinations

This questionnaire aims to explore your approaches to GCSE coursework and examinations. The answers that you give will remain confidential and the general collated answers will form part of a research project.

All questionnaires have a reference number simply to keep count of the completed forms.

Please answer every item in the questionnaire by giving your immediate response. Do not spend too long thinking about the questions; there are no right or wrong answers; the researcher is interested in your attitudes and how you approach your work.

For each of the questions circle the number that most represents your approach to your GCSE studies.

5. Strongly agree
4. Agree
2. Disagree
1. Strongly disagree

3. Use this if you find it impossible to give an answer or you feel that the question does not apply to you

Your participation in this research is much appreciated.

No	*Question*	*SA*	*A*	*D*	*SD*		*U*
1	It's really important to have use of a computer at home	5	4	2	1		3
2	I find it hard to memorise things	5	4	2	1		3
3	When I need information about a topic I usually rely on the books I have at home	5	4	2	1		3
4	I find it difficult to make notes for revision	5	4	2	1		3
5	I usually find some time to relax each evening	5	4	2	1		3
6	I try to break my coursework down into small tasks rather than seeing it as a massive project	5	4	2	1		3
7	I try to gain a broad understanding of the subject rather than learning lots of facts	5	4	2	1		3
8	I find it difficult to concentrate when working at home	5	4	2	1		3
9	I need to make lots of notes about a topic before writing an essay	5	4	2	1		3
10	I usually plan my revision weeks in advance	5	4	2	1		3
11	I like doing coursework because you can do it in your own time	5	4	2	1		3
12	Sometimes I have to work really long hours to finish my homework	5	4	2	1		3
13	I'm not always sure about what is required for coursework	5	4	2	1		3
14	I find it helpful to revise with my friends	5	4	2	1		3
15	I find it helpful to work with music playing	5	4	2	1		3
16	I get anxious about coursework because you get less help from the teachers	5	4	2	1		3
17	I prefer exams because you know what you've got to learn	5	4	2	1		3
18	I usually leave my homework until it absolutely has to be done	5	4	2	1		3
19	Often I have to cancel seeing my friends or going out because I have too much work to do	5	4	2	1		3
20	I tend to revise in short bursts	5	4	2	1		3
21	I tend to vary the amount of time I spend on coursework dependent on how much it is worth	5	4	2	1		3
22	I have a set area in which I always do my work	5	4	2	1		3
23	Once the exam is over I find that I remember very little	5	4	2	1		3
24	I often spend long hours doing coursework because I am anxious for it to be right	5	4	2	1		3
25	I often read more about areas that interest me	5	4	2	1		3
26	I find that coursework tends to pile up so I end up working really hard at the end	5	4	2	1		3
27	I usually take regular breaks when doing my homework	5	4	2	1		3
28	I feel that there is so much to learn that I find it difficult to know what to revise	5	4	2	1		3
29	If I don't feel that the homework is important then I do the minimum	5	4	2	1		3
30	I put more effort into coursework than other work	5	4	2	1		3
31	I use different ways of revising like rewriting or highlighting notes	5	4	2	1		3
32	I prefer working in front of the TV	5	4	2	1		3
33	I find it helpful to discuss coursework with my friends	5	4	2	1		3
34	I like looking up information	5	4	2	1		3
35	I find learning facts for exams rather tedious	5	4	2	1		3
36	I usually start my homework promptly in the evening	5	4	2	1		3
37	I find coursework gives you the opportunity to explore your own ideas	5	4	2	1		3
38	I find it useful to have Internet access for research	5	4	2	1		3
39	When given lesson time for coursework I prefer to chat with my friends and then work at home	5	4	2	1		3
40	I usually make sure that I have everything I need before starting work	5	4	2	1		3
41	I don't feel that I do my best in exams	5	4	2	1		3
42	I often go to the library for extra information	5	4	2	1		3

Please turn over

Reference number:

Please would you indicate which Year you are currently in:

Year 10 11

Having completed the questionnaire it would be appreciated if you would also answer the questions below since these will give the researcher further information that will help the project. As before all answers are confidential.

1. Do you have older brothers or sisters in your family, if so how many?

   Brother(s) Sister(s)

2. Do you have younger brothers or sisters in your family, if so how many?

   Brother(s) Sister(s)

3. Do you have your own computer at home? Yes/No

4. Do you have access to a computer at home? Yes/No

5. Do you have Internet access at home? Yes/No

6. Would you indicate the amount of homework on average that you complete for each of your GCSE subjects. Do this in hours or half hours, as you prefer. Would you also add in the other GCSEs that you take in the blank columns.

Subject	English	Maths	French	Chemistry	Biology	Physics
Amount of homework completed each week						

Subject						
Amount of homework completed each week						

Appendix 2: Pilot questionnaire and instructions (Reduced in size to fit window)

Dear Pupil

This questionnaire aims to explore your experiences of studying for GCSE. The answers that you give will be confidential and the general collated answers will form part of a research project.

Please answer every question by giving your immediate response. Do not spend too long thinking about the questions; there are no right or wrong answers. You will be allowed 15-20 minutes to complete the questionnaire.

For each of the questions will you circle the number that most represents your approach to your GCSE studies:

5 Strongly agree
4 Agree
2 Disagree
1 Strongly disagree

3 Use this if you find it impossible to give an answer or you feel that the question does not apply to you

Once you have completed the questions then would you complete the background information on the other sheet. All answers are confidential but will provide useful information for the project.

Thank you for your help.

Studying for GCSE

No	*Question*	SA	A	*D*	*SD*		*U*
1	It's really important to have use of a computer at home for coursework	5	4	2	1		3
2	I prefer exams because you know what you've got to learn	5	4	2	1		3
3	I find it helpful to work with music playing because it helps me to concentrate	5	4	2	1		3
4	I find it useful to have Internet access for research	5	4	2	1		3
5	I find coursework gives you the opportunity to explore your own ideas	5	4	2	1		3
6	I try to plan my homework so that it is manageable	5	4	2	1		3
7	I usually plan my revision weeks in advance	5	4	2	1		3
8	I often spend long hours doing coursework because I am anxious for it to be right	5	4	2	1		3
9	I usually do my homework at school	5	4	2	1		3
10	I'm unsure whether my work is any good or not	5	4	2	1		3
11	I find websites (e.g. BBC Bitesize) helpful when revising for exams	5	4	2	1		3
12	If I don't feel that the homework is important then I do it in the shortest time possible	5	4	2	1		3
13	I try to break my coursework down into small tasks rather than seeing it as a massive project	5	4	2	1		3
14	I go through lots of practice questions and past papers to help prepare for the exams	5	4	2	1		3
15	When given lesson time for coursework I prefer to chat with my friends and then work at home	5	4	2	1		3
16	I often work in front of the TV because it prevents me from getting bored	5	4	2	1		3
17	I find it helpful to revise with my friends	5	4	2	1		3
18	If I find my work difficult then I look things up in other books	5	4	2	1		3
19	Most of the exams are based on the work that I have done during the GCSE course so I don't feel that there is too much to revise	5	4	2	1		3
20	I like doing coursework because you can do it in your own time	5	4	2	1		3
21	When revising I test myself to check that I understand everything	5	4	2	1		3
22	I often go to the library for extra information	5	4	2	1		3
23	I usually take regular breaks when doing my homework	5	4	2	1		3
24	I find it hard to memorise things	5	4	2	1		3
25	I usually make sure that I have everything I need before starting work	5	4	2	1		3

Please turn over

26	I often re-read things if I don't understand the first time	5	4	2	1		3
27	I find that coursework tends to pile up	5	4	2	1		3
28	I spend time being critical of my own work since it helps me to produce better work	5	4	2	1		3
29	I find it difficult to concentrate when working at home	5	4	2	1		3
30	I tend to revise in short bursts because I concentrate better that way	5	4	2	1		3
31	Wherever I'm working I make sure that I feel comfortable so that I can focus on what I have to do	5	4	2	1		3
32	I put more effort into coursework than other work	5	4	2	1		3
33	I find it difficult to organise my work so that I have some time to relax each evening	5	4	2	1		3
34	I tend to revise more for subjects that I find difficult	5	4	2	1		3
35	I make sure that I check all my coursework drafts for any mistakes to see if I can improve	5	4	2	1		3
36	I get anxious about exams because I don't feel that I do my best	5	4	2	1		3
37	If my work isn't going well then I find it helpful to change to another task for a while and then go back	5	4	2	1		3
38	I usually have to work really hard at the end to complete coursework	5	4	2	1		3
39	I vary the amount of revision I do depending on whether I find the subject easy or difficult	5	4	2	1		3
40	When I need information about a topic I usually rely on the books I have at home	5	4	2	1		3
41	I find it helpful to discuss coursework with my friends	5	4	2	1		3
42	I feel that I have to spend hours rote-learning facts for a lot of the exams	5	4	2	1		3
43	I know what I need to do to get a good mark	5	4	2	1		3
44	I use different ways of revising	5	4	2	1		3
45	I usually leave my homework until it absolutely has to be done	5	4	2	1		3
46	I don't feel confident in assessing whether I know something or not	5	4	2	1		3
47	I often read more about areas that interest me	5	4	2	1		3
48	I get anxious about coursework	5	4	2	1		3
49	I find it hard to accept criticism of my work	5	4	2	1		3
50	When revising I usually test myself to see if I remember things	5	4	2	1		3
51	I make use of the feedback from teachers since it helps me to improve	5	4	2	1		3
52	I find it difficult to make notes for revision	5	4	2	1		3
53	I feel that you get less help from teachers for coursework	5	4	2	1		3
54	If I know that I don't understand something then I avoid those questions	5	4	2	1		3
55	It's difficult to manage the time required for coursework because there is no limit to what could be done	5	4	2	1		3
56	If I am unsure about something then I make an effort to improve my understanding	5	4	2	1		3
57	I usually try to remember lots of facts for exams rather than gaining an overview	5	4	2	1		3
58	I'm not always sure about what is required for coursework	5	4	2	1		3
59	Sometimes I have to work really long hours to finish my homework	5	4	2	1		3
60	Once the exam is over I find that I remember very little	5	4	2	1		3
61	Often I have to cancel seeing my friends or going out because I have too much work to do	5	4	2	1		3
62	I like gathering information from a range of sources and then forming my own opinion	5	4	2	1		3
63	The amount of homework varies so much that it is difficult to plan my work	5	4	2	1		3
64	I usually use revision guides to help me prepare for exams	5	4	2	1		3
65	I tend to make lots of notes about a topic before feeling confident enough to write an essay	5	4	2	1		3
66	I am aware when I don't understand things	5	4	2	1		3
67	I tend to do several drafts of coursework before submitting the final piece of work	5	4	2	1		3
68	If I feel unsure about something I ask for help from someone else	5	4	2	1		3
69	I feel that there is so much to learn that I find it difficult to know what to revise	5	4	2	1		3
70	I always plan what homework I have to complete by the next day	5	4	2	1		3
71	I find it difficult to summarise information	5	4	2	1		3

Would you now answer the background questions on the sheet provided.

Background questions

Name: ---------- **Date of birth:** ----------

Gender:	Male		Female		**Is English your first language?**	Yes		No	

Ethnic origin

African		Bangladeshi		Caribbean		Chinese	
Indian		Pakistani		White		Other	

1. Do you have access to a computer at home?	Yes		No	
2. Do you have your own computer at home?	Yes		No	
3. Do you have Internet access at home?	Yes		No	

4. How important is it for you to do well in your GCSEs? *(Circle your choice)*

   Very important Quite important Don't mind Not important

5. What do you intend to do after your GCSEs? (*Tick all that apply*)

Get a job	
Begin studying for AS and A Levels	
Begin studying for a GNVQ	
Start an apprenticeship e.g. to become an electrician, hairdresser	
Other (please specify)	

6. What career would you like to follow after finishing your education?

   .....

7. How much do you discuss your schoolwork with your parents? *(Circle your choice)*

   All the time A lot Sometimes Not at all

8. What job does your father do? .....

9. What job does your mother do? .....

10. Would you indicate the amount of homework on average that you complete for each of your GCSE subjects each week. Do this in hours or half hours, as you prefer. Would you also add in the other GCSEs that you take in the blank columns.

Subject	English	Maths	French	Dual Award Science	Biology	Chemistry	Physics
Homework completed each week							

Subject						
Homework completed each week						

11. Are there facilities at school that help you with your studying? (*Tick those that you use*)

Homework club: at lunchtime ☐ after school ☐ Computer club: at lunchtime ☐ after school ☐

12. Where and with whom do you do most of your homework? *(Tick all that apply)*

    In school At home At a homework club With friends Alone Other

Appendix 3: Characteristics of the sample for the pilot of the research instrument

Pilot sample size by gender, ethnicity and social class (N = 47)

		N	*%*
By gender	Male	19	40.4
	Female	28	59.6
By ethnicity	African	13	27.7
	Caribbean	6	12.8
	White	17	36.2
	Other	11	23.4
By social class	Professional	8	17
	Managerial/ Technical	6	12.8
	Skilled non-manual	10	21.3
	Skilled manual	14	29.8
	Partly skilled manual	4	8.5
	Missing	5	10.6

Appendix 4: Form tutor instructions for the administration of the pilot questionnaire

Questionnaire: Perceptions of studying for GCSE

Research project: notes for form staff

Thank you for your help with the gathering of data for my research. As you are aware the focus of the research is to explore pupils' perceptions of studying for their GCSEs.

Please encourage the pupils to provide their name as asked in the background questions. This is simply to ensure that the data are matched correctly. No individual names will be used in the research. Please assure pupils that all data is confidential and is part of a research project.

Each pupil will need a copy of the questionnaire – this contains instructions and also a series of background questions.

After you have given out the questionnaires please would you read the following to the pupils:

"As part of a project the researcher is looking to investigate pupils' experiences of studying for their GCSEs. The researcher would be really grateful for your response to all the questions. All answers are confidential and the final report will be based on overall results rather than those of one individual. You may withdraw from participating in this research at anytime."

Once the pupils have completed all the questions do ask if any of them wish to ask any questions. Pupils could, if they wish, write these down on a piece of paper and I will get back to them.

Thank you for your help.

Appendix 5: The facility index for all questions from the pilot according to content area

Facility index for coursework strategies

Question number	*Question*	*Facility index*
1	*It's really important to have use of a computer at home for coursework*	4.02
5	*I find coursework gives you the opportunity to explore your own ideas*	3.96
8r	*I often spend long hours doing coursework because I am anxious for it to be right*	2.09
13	*I try to break my coursework down into small tasks rather than seeing it as a massive project*	3.68
15r	*When given lesson time for coursework I prefer to chat with my friends and then work at home*	3.72
20	*I like doing coursework because you can do it in your own time*	2.87
27r	*I find that coursework tends to pile up*	1.96
32	*I put more effort into coursework*	3.77
35	*I make sure that I check all my coursework drafts for any mistakes to see if I can improve*	4.02
38r	*I usually have to work really hard at the end to complete coursework*	1.96
41	*I find it helpful to discuss coursework with my friends*	4.04
48r	*I get anxious about coursework*	2.43
53r	*I feel that you get less help from teachers for coursework*	3.96
55r	*It's difficult to manage the time required for coursework because there is no limit to what could be done*	2.49
58r	*I'm not always sure about what is required for coursework*	3.06
67	*I tend to do several drafts of coursework before submitting the final piece of work*	3.38

(r indicates that the scores were reversed)

Facility index for examination strategies

Question number	*Question*	*Facility index*
2	*I prefer exams because you know what you've got to learn*	3.26
7	*I usually plan my revision weeks in advance*	3.36
11	*I find websites (e.g. BBC Bitesize) helpful when revising for exams*	3.85
14	*I go through lots of practice questions and past papers to help prepare for the exams*	4.38
17	*I find it helpful to revise with my friends*	3.79
19	*Most of the exams are based on the work that I have done during the GCSE course so I don't feel that there is much to revise*	2.55
21	*When revising I test myself to check that I understand everything*	4.13
24r	*I find it hard to memorise things*	3.15
30	*I tend to revise in short bursts because I concentrate better that way*	3.47
34	*I tend to revise more for subjects that I find difficult*	4.04
36r	*I get anxious about exams because I don't feel that I do my best*	2.26
39	*I vary the amount of revision I do depending on whether I find the subject easy or difficult*	3.81
42r	*I feel that I have to spend hours rote-learning facts for a lot of the exams*	2.66
44	*I use different ways of revising*	3.91
46r	*I don't feel confident in assessing whether I know something or not*	2.96
50	*When revising I usually test myself to see if I remember things*	4.23
52r	*I find it difficult to make notes for revision*	3.43
54r	*If I know I don't understand something then I avoid those questions*	3.89
57r	*I usually try to remember lots of facts for exams rather than gaining an overview*	2.23
60r	*Once the exam is over I find that I remember very little*	2.83
64	*I usually use revision guides to help me prepare for exams*	4.28
69r	*I feel that there is so much to learn that I find it difficult to know what to revise*	2.15

(r indicates that the scores were reversed)

Facility index for study strategies

Question number	*Question*	*Facility index*
3	*I find it helpful to work with music playing because it helps me to concentrate*	2.81
10r	*I'm unsure whether my work is any good or not*	3.17
16r	*I often work in front of the TV because it prevents me from getting bored*	4.02
25	*I usually make sure I have everything I need before starting work*	4.23
26	*I often re-read things if I don't understand the first time*	4.72
28	*I spend time being critical of my own work since it helps me to produce better work*	3.68
31	*Wherever I'm working I make sure that I feel comfortable so that I can focus on what I have to do*	4.53
33r	*I find it difficult to organise my work so that I have some time to relax each evening*	2.51
37	*If my work isn't going well then I find it helpful to change to another task for a while and then go back*	3.6
43	*I know what I need to do to get a good mark*	3.91
49r	*I find it hard to accept criticism of my work*	3.32
51	*I make use of the feedback from teachers since it helps me to improve*	4.57
56	*If I am unsure about something then I make an effort to improve my understanding*	4.23
61r	*Often I have to cancel seeing my friends or going out because I have too much work to do*	2.51
66	*I am aware when I don't understand things*	4.26

(r indicates that the scores were reversed)

Facility index for homework strategies

Question number	*Question*	*Facility index*
6	*I try to plan my homework so that it is manageable*	3.47
9r	*I usually do my homework at school*	3.7
12r	*If I don't feel that homework is important then I do it in the shortest time possible*	3.23
23	*I usually take regular breaks when doing my homework*	3.53
29r	*I find it difficult to concentrate when working at home*	3.7
45r	*I usually leave my homework until it absolutely has to be done*	3.21
59r	*Sometimes I have to work really long hours to finish my homework*	2.4
63r	*The amount of homework varies so much that it is difficult to plan my work*	2.45
70	*I always plan what homework I have to complete by the next day*	3.3

(r indicates that the scores were reversed)

Facility index for research strategies

Question number	*Question*	*Facility index*
4	*I find it useful to have Internet access for research*	4.19
18	*If I find my work difficult then I look things up in other books*	4.13
22	*I often go to the library for extra information*	3.06
40r	*When I need information about a topic I usually rely on the books that I have at home*	2.68
47	*I often read more about areas that interest me*	4.23
62	*I like gathering information from a range of sources and then forming my own opinion*	3.74
65r	*I tend to write lots of notes about a topic before feeling confident enough to write an essay*	2.21
68	*If I feel unsure about something then I ask for help from someone else*	4.34
71r	*I find it difficult to summarise information*	3.36

(r indicates that the scores were reversed)

Appendix 6: The discrimination for all questions from the pilot according to content area

Pearson Correlation coefficients for coursework strategies

Question number	*Question*	*Value obtained for r*
1	*It's really important to have use of a computer at home for coursework*	0.089
5	*I find coursework gives you the opportunity to explore your own ideas*	0.62
8r	*I often spend long hours doing coursework because I am anxious for it to be right*	0.177
13	*I try to break my coursework down into small tasks rather than seeing it as a massive project*	0.485
15r	*When given lesson time for coursework I prefer to chat with my friends and then work at home*	0.104
20	*I like doing coursework because you can do it in your own time*	0.381
27r	*I find that coursework tends to pile up*	0.536
32	*I put more effort into coursework*	0.014
35	*I make sure that I check all my coursework drafts for any mistakes to see if I can improve*	0.39
38r	*I usually have to work really hard at the end to complete coursework*	0.505
41	*I find it helpful to discuss coursework with my friends*	0.303
48r	*I get anxious about coursework*	0.424
53r	*I feel that you get less help from teachers for coursework*	0.233
55r	*It's difficult to manage the time required for coursework because there is no limit to what could be done*	0.312
58r	*I'm not always sure about what is required for coursework*	0.566
67	*I tend to do several drafts of coursework before submitting the final piece of work*	0.414

(r indicates that the scores were reversed)

Pearson Correlation coefficients for examination strategies

Question number	*Question*	*Value obtained for r*
2	*I prefer exams because you know what you've got to learn*	0.42
7	*I usually plan my revision weeks in advance*	0.299
11	*I find websites (e.g. BBC Bitesize) helpful when revising for exams*	0.316
14	*I go through lots of practice questions and past papers to help prepare for the exams*	0.23
17	*I find it helpful to revise with my friends*	0.375
19	*Most of the exams are based on the work that I have done during the GCSE course so I don't feel that there is much to revise*	0.253
21	*When revising I test myself to check that I understand everything*	0.313
24r	*I find it hard to memorise things*	0.534
30	*I tend to revise in short bursts because I concentrate better that way*	-0.058
34	*I tend to revise more for subjects that I find difficult*	0.301
36r	*I get anxious about exams because I don't feel that I do my best*	0.573
39	*I vary the amount of revision I do depending on whether I find the subject easy or difficult*	0.212
42r	*I feel that I have to spend hours rote-learning facts for a lot of the exams*	0.272
44	*I use different ways of revising*	0.442
46r	*I don't feel confident in assessing whether I know something or not*	0.456
50	*When revising I usually test myself to see if I remember things*	0.377
52r	*I find it difficult to make notes for revision*	0.307
54r	*If I know I don't understand something then I avoid those questions*	0.261
57r	*I usually try to remember lots of facts for exams rather than gaining an overview*	0.057
60r	*Once the exam is over I find that I remember very little*	0.339
64	*I usually use revision guides to help me prepare for exams*	0.476
69r	*I feel that there is so much to learn that I find it difficult to know what to revise*	0.247

(r indicates that the scores were reversed)

Pearson Correlation coefficients for study strategies

Question number	*Question*	*Value obtained for r*
3	*I find it helpful to work with music playing because it helps me to concentrate*	0.268
10r	*I'm unsure whether my work is any good or not*	0.347
16r	*I often work in front of the TV because it prevents me from getting bored*	0.38
25	*I usually make sure I have everything I need before starting work*	0.44
26	*I often re-read things if I don't understand the first time*	0.426
28	*I spend time being critical of my own work since it helps me to produce better work*	0.207
31	*Wherever I'm working I make sure that I feel comfortable so that I can focus on what I have to do*	0.176
33r	*I find it difficult to organise my work so that I have some time to relax each evening*	0.664
37	*If my work isn't going well then I find it helpful to change to another task for a while and then go back*	0.138
43	*I know what I need to do to get a good mark*	0.324
49r	*I find it hard to accept criticism of my work*	0.465
51	*I make use of the feedback from teachers since it helps me to improve*	0.232
56	*If I am unsure about something then I make an effort to improve my understanding*	0.515
61r	*Often I have to cancel seeing my friends or going out because I have too much work to do*	-0.076
66	*I am aware when I don't understand things*	0.334

(r indicates that the scores were reversed)

Pearson Correlation coefficients for homework strategies

Question number	*Question*	*Value obtained for r*
6	*I try to plan my homework so that it is manageable*	0.507
9r	*I usually do my homework at school*	0.749
12r	*If I don't feel that homework is important then I do it in the shortest time possible*	0.464
23	*I usually take regular breaks when doing my homework*	0.177
29r	*I find it difficult to concentrate when working at home*	0.343
45r	*I usually leave my homework until it absolutely has to be done*	0.37
59r	*Sometimes I have to work really long hours to finish my homework*	0.466
63r	*The amount of homework varies so much that it is difficult to plan my work*	0.405
70	*I always plan what homework I have to complete by the next day*	0.361

(r indicates that the scores were reversed)

Pearson Correlation coefficients for research strategies

Question number	*Question*	*Value obtained for r*
4	*I find it useful to have Internet access for research*	0.353
18	*If I find my work difficult then I look things up in other books*	0.3
22	*I often go to the library for extra information*	0.622
40r	*When I need information about a topic I usually rely on the books that I have at home*	0.472
47	*I often read more about areas that interest me*	0.018
62	*I like gathering information from a range of sources and then forming my own opinion*	0.378
65r	*I tend to write lots of notes about a topic before feeling confident enough to write an essay*	0.291
68	*If I feel unsure about something then I ask for help from someone else*	0.183
71r	*I find it difficult to summarise information*	0.283

(r indicates that the scores were reversed)

Appendix 7: Final questionnaire and instructions (Reduced in size to fit window)

Dear Pupil

This questionnaire aims to explore your experiences of studying for GCSE. The answers that you give will be confidential and the general collated answers will form part of a research project.

Please answer every question by giving your immediate response. Do not spend too long thinking about the questions; there are no right or wrong answers. You will be allowed 15-20 minutes to complete the questionnaire.

For each of the questions will you circle the number that most represents your approach to your GCSE studies:

5	Strongly agree
4	Agree
2	Disagree
1	Strongly disagree
3	Use this if you find it impossible to give an answer or you feel that the question does not apply to you.

Once you have completed the questions then would you complete the background information. All answers are confidential but will provide useful information for the project.

Thank you for your help.

Studying for GCSE

No	*Question*	SA	A	D	SD		U
1	It's really important to have use of a computer at home for coursework	5	4	2	1		3
2	I prefer exams because you know what you've got to learn	5	4	2	1		3
3	I find it helpful to work with music playing because it helps me to concentrate	5	4	2	1		3
4	I find it useful to have Internet access for research	5	4	2	1		3
5	I find coursework gives you the opportunity to explore your own ideas	5	4	2	1		3
6	I try to plan my homework so that it is manageable	5	4	2	1		3
7	I usually plan my revision weeks in advance	5	4	2	1		3
8	I often spend long hours doing coursework because I am anxious for it to be right	5	4	2	1		3
9	I usually do my homework at school	5	4	2	1		3
10	I'm unsure whether my work is any good or not	5	4	2	1		3
11	I find websites (e.g. BBC Bitesize) helpful when revising for exams	5	4	2	1		3
12	If I don't feel that the homework is important then I do it in the shortest time possible	5	4	2	1		3
13	I try to break my coursework down into small tasks rather than seeing it as a massive project	5	4	2	1		3
14	I go through lots of practice questions and past papers to help prepare for the exams	5	4	2	1		3
15	When given lesson time for coursework I prefer to chat with my friends and then work at home	5	4	2	1		3
16	I often work in front of the TV because it prevents me from getting bored	5	4	2	1		3
17	I find it helpful to revise with my friends	5	4	2	1		3
18	If I find my work difficult then I look things up in other books	5	4	2	1		3
19	Most of the exams are based on the work that I have done during the GCSE course so I don't feel that there is too much to revise	5	4	2	1		3
20	I like doing coursework because you can do it in your own time	5	4	2	1		3
21	When revising I test myself to check that I understand everything	5	4	2	1		3
22	I often go to the library for extra information	5	4	2	1		3
23	I usually take regular breaks when doing my homework	5	4	2	1		3
24	I find it hard to memorise things	5	4	2	1		3
25	I usually make sure that I have everything I need before starting work	5	4	2	1		3

Please turn over

26	I often re-read things if I don't understand the first time	5	4	2	1		3
27	I find that coursework tends to pile up	5	4	2	1		3
28	I spend time being critical of my own work since it helps me to produce better work	5	4	2	1		3
29	I find it difficult to concentrate when working at home	5	4	2	1		3
30	I tend to revise in short bursts because I concentrate better that way	5	4	2	1		3
31	Wherever I'm working I make sure that I feel comfortable so that I can focus on what I have to do	5	4	2	1		3
32	I put more effort into coursework than other work	5	4	2	1		3
33	I find it difficult to organise my work so that I have some time to relax each evening	5	4	2	1		3
34	I tend to revise more for subjects that I find difficult	5	4	2	1		3
35	I make sure that I check all my coursework drafts for any mistakes to see if I can improve	5	4	2	1		3
36	I get anxious about exams because I don't feel that I do my best	5	4	2	1		3
37	If my work isn't going well then I find it helpful to change to another task for a while and then go back	5	4	2	1		3
38	I usually have to work really hard at the end to complete coursework	5	4	2	1		3
39	I vary the amount of revision I do depending on whether I find the subject easy or difficult	5	4	2	1		3
40	When I need information about a topic I usually rely on the books I have at home	5	4	2	1		3
41	I find it helpful to discuss coursework with my friends	5	4	2	1		3
42	I feel that I have to spend hours rote-learning facts for a lot of the exams	5	4	2	1		3
43	I know what I need to do to get a good mark	5	4	2	1		3
44	I use different ways of revising	5	4	2	1		3
45	I usually leave my homework until it absolutely has to be done	5	4	2	1		3
46	I don't feel confident in assessing whether I know something or not	5	4	2	1		3
47	I often read more about areas that interest me	5	4	2	1		3
48	I get anxious about coursework	5	4	2	1		3
49	I find it hard to accept criticism of my work	5	4	2	1		3
50	When revising I usually test myself to see if I remember things	5	4	2	1		3
51	I make use of the feedback from teachers since it helps me to improve	5	4	2	1		3
52	I find it difficult to make notes for revision	5	4	2	1		3
53	I feel that you get less help from teachers for coursework	5	4	2	1		3
54	If I know that I don't understand something then I avoid those questions	5	4	2	1		3
55	It's difficult to manage the time required for coursework because there is no limit to what could be done	5	4	2	1		3
56	If I am unsure about something then I make an effort to improve my understanding	5	4	2	1		3
57	I usually try to remember lots of facts for exams rather than gaining an overview	5	4	2	1		3
58	I'm not always sure about what is required for coursework	5	4	2	1		3
59	Sometimes I have to work really long hours to finish my homework	5	4	2	1		3
60	Once the exam is over I find that I remember very little	5	4	2	1		3
61	Often I have to cancel seeing my friends or going out because I have too much work to do	5	4	2	1		3
62	I like gathering information from a range of sources and then forming my own opinion	5	4	2	1		3
63	The amount of homework varies so much that it is difficult to plan my work	5	4	2	1		3
64	I usually use revision guides to help me prepare for exams	5	4	2	1		3
65	I tend to make lots of notes about a topic before feeling confident enough to write an essay	5	4	2	1		3
66	I am aware when I don't understand things	5	4	2	1		3
67	I tend to do several drafts of coursework before submitting the final piece of work	5	4	2	1		3
68	If I feel unsure about something I ask for help from someone else	5	4	2	1		3
69	I feel that there is so much to learn that I find it difficult to know what to revise	5	4	2	1		3
70	I always plan what homework I have to complete by the next day	5	4	2	1		3
71	I find it difficult to summarise information	5	4	2	1		3

Would you now answer the background questions.

Background questions

Name: ---------- **Date of birth:** ----------

Gender	Male		Female		**Is English your first language?**	Yes		No	

Ethnic origin

African		Bangladeshi		Caribbean		Chinese	
Indian		Pakistani		White		Other, please specify	

1. Do you have access to a computer at home?	Yes		No	
2. Do you have your own computer at home?	Yes		No	
3. Do you have Internet access at home?	Yes		No	

4. How important is it for you to do well in your GCSEs? *(Circle your choice)*

   Very important Quite important Don't mind Not important

5. How confident are you that you will do well in your GCSEs? (*Circle your choice*)

   Very confident Quite confident Not sure Not at all confident

6. Which of the following describes the GCSE results that you think you will get. (*Please tick*)

No GCSEs	
1-4 GCSEs at Grades D-G	
5 or more GCSEs at Grades D-G	
1-4 GCSEs at Grades A*-C	
5 or more GCSEs at Grades A*-C	
Not really sure	

7. What do you intend to do after your GCSEs? (*Tick all that apply*)

Get a job	
Begin studying for AS and A Levels	
Begin studying for a GNVQ	
Start an apprenticeship e.g. to become an electrician, hairdresser	
Other (please specify)	

8. What career would you like to follow after finishing your education?

.....

9. Who are you most likely to ask for help with your schoolwork? (*Please tick*)

Parents		Friends		Teachers		Other (please specify)	

Please turn over

10. How much do you discuss your schoolwork with your parents? *(Circle your choice)*

    All the time A lot Sometimes Not at all

11. What job does your father do? .....

12. What job does your mother do? .....

13. Are you eligible for free school meals? (*Please tick*)

Yes		No	

14. Would you indicate the amount of homework on average that you complete for each of your GCSE subjects each week. Do this in hours or half hours, as you prefer. Would you also add in the other GCSEs that you take in the blank columns.

Subject	English	Maths	French	Dual Award Science	Biology	Chemistry	Physics
Homework completed each week							

Subject						
Homework completed each week						

15. Are there facilities at school that help you with your studying? (*Tick those that you use*)

Homework club: at lunchtime ☐ after school ☐ Computer club: at lunchtime ☐ after school ☐

16. Where and with whom do you do most of your homework? *(Tick all that apply)*

    In school At home At a homework club With friends Alone Other

17. Is there anything else that you feel is important in how you approach your studying for GCSEs that has not been covered in the questionnaire? Please comment if you wish.

.....

.....

.....

.....

.....

Thank you for completing this questionnaire

Appendix 8: The pilot interview guide

Introduction	1.	Are you enjoying studying for your GCSEs?

Key	2.	Are there differences between studying for coursework and examinations?
		
		Listen and probe for:
		• Preference for coursework
		  o Explore ideas
		  o Own time
		  o Feedback
		• Preference for examinations
		  o Time limited
		  o Fixed content
		• Revision strategies
		  o The use of different strategies
		  o No strategies
		  o Additional resources

Key	3.	What about different subjects? Listen and probe for: • Subject hierarchy • Spending more time on preferred subjects • Conflicting teacher demands

Key	4.	Are you aware of altering things to help you with your studying?
		
		Listen and probe for:
		• Varying the order of tasks
		• Using different resources
		• Planning
		  o Coursework
		  o Examinations
		  o Homework
		• Time management
		  o Coursework
		  o Examinations
		  o Homework
		• Asking people for help
		  o Friends
		  o Teachers
		  o Parents

Key	5.	Do you spend any time thinking about the way you study?
Key	6.	Do you think that you make best use of your time when you are studying? Listen and probe: • What might help to make a difference?
Key	7.	Do you think that next year will be different? Listen and probe for: • Coursework • Examinations
Ending	8.	What are the most important things about studying for GCSEs?
Ending	9.	Are there any other issues about studying for GCSE that have not been included?

Appendix 9: The revised interview guide

Introduction	1.	Are you enjoying studying for your GCSEs?
Key	2.	Are there differences between studying for coursework and examinations? Listen and probe for: • Preference for coursework o Explore ideas o Own time o Feedback • Preference for examinations o Time limited o Fixed content • Revision strategies o The use of different strategies o No strategies o Additional resources
Key	3.	What about different subjects? Listen and probe for: • Subject hierarchy • Spending more time on preferred subjects • Conflicting teacher demands
Key	4.	Are you aware of altering things to help you with your studying? Listen and probe for: • Varying the order of tasks • Using different resources • Planning o Coursework o Examinations o Homework • Time management o Coursework o Examinations o Homework • Asking people for help o Friends o Teachers o Parents

Key	5.	Do you spend any time thinking about the way you study?
Key	6.	Do you think that you make best use of your time when you are studying? Listen and probe: • What might help to make a difference?
Key	7.	Do you think that next year will be different? Listen and probe for: • Coursework • Examinations
Key	8.	Do you think that your actual GCSE examinations will be different from taking school examinations? Listen and probe for: • Timing more spaced out • Benefits of study leave • More important
Key	9.	What are you intending to do after your GCSEs? Listen and probe for: • Importance of GCSEs for future education • Perceived differences when studying in the sixth form or college • Greater choice of subjects studied
Ending	10.	What are the most important things about studying for GCSEs?
Ending	11.	Are there any other issues about studying for GCSE that have not been included?

Appendix 10: The Year 11 interview guide

Introduction	1.	How are your GCSEs progressing?
Key	2.	Is the coursework still a concern? Listen and probe for: • Redrafting coursework • Issues with completing coursework • Coursework deadlines • Teacher support • Value placed on coursework • Pressure
Key	3.	What about your examination preparation, how is that going? Listen and probe for: • Revision strategies • Use of additional resources • Teacher support • Time spent and balance with coursework • Pressure
Key	4.	Are there any issues between different subjects? Listen and probe for: • Varying revision for easy or difficult subjects • Balancing the demands of different subjects • Varying levels of teacher support across subjects
Key	5.	What about the mock examinations, were they useful in preparing for the final examinations?
Key	6.	How confident do you feel about your GCSEs? Are you under any pressure to succeed? Listen and probe for: • Levels of confidence and why • Future educational plans and how this relates to their GCSEs • Pressure to succeed o Parental o School o Individual

Key	7.	Do you think you have changed at all this year in relation to studying for your GCSEs? Listen and probe for: • Increased time planning work • Increased time organising your work • Increase in revision strategies
Key	8.	Is that anything that you would have done differently if you were beginning your GCSEs again?
Key	9.	What advice would you give to students who were just beginning their GCSE course in Year 10?
Key	10.	What are you intending to do after your GCSEs? Listen and probe for: • Importance of GCSEs for future education: are grades important • Perceived differences when studying in the sixth form or college • Greater choice of subjects studied
Ending	11.	If you summarised the most critical things about GCSE, what would you say?
Ending	12.	Are there any other issues about studying for GCSE that have not been included?

Appendix 11: Form tutor instructions for the administration of the questionnaire

Questionnaire: Perceptions of studying for GCSE

Research project: notes for form staff

Thank you for your help with the gathering of data for my research. Some of you may remember this questionnaire from last year: the purpose of asking pupils to complete it in Year 11 is to see whether perceptions of studying for GCSE change during the course.

Please encourage the pupils to provide their name as asked in the background questions. This is really important since it ensures that the data are matched correctly. No individual names will be used in the research. Please assure pupils that all data is confidential and is part of a research project.

If some of the pupils did not complete the questionnaire when in Year 10 do encourage them to complete it now they are in Year 11.

Each pupil will need a copy of the questionnaire – this contains instructions and also a series of background questions. Although there appear to be a lot of questions it does not take the pupils very long to complete.

After you have given out the questionnaires please would you read the following to the pupils:

"Thank you for participating in this research about how pupils study for their GCSEs. Some of you may remember the questionnaire from last year but the researcher would be really grateful if you would answer the questions again since one of the aims of the research is to investigate whether your experiences have changed. The researcher would be really grateful for your response to all the questions. All answers are confidential and the final report will be based on overall results rather than those of one individual. You may withdraw from participating in this research at anytime."

Once the pupils have completed all the questions do ask if any of them wish to ask any questions. Pupils could, if they wish, write these down on a piece of paper and I will get back to them.

Once again many thanks for your help.

Lynne Rogers

Appendix 12: Interview transcript

Year 11 focus group interview, School 6

LR: So how are your GCSEs progressing?

It's ok, but they have kind of piled it on. They put everything into this week, like this week our technology has to be in, and our Drama presentations and Art. So it is a bit stupid because they just pile everything on in literally the same week.

All the deadlines are at the same time. Everyone is like you have to hand your coursework in now and it's like 'oh my god, it's too much'.

It seems that for months we haven't being doing very much and suddenly you have all of this all together instead of it being spread out.

I wish the teachers would talk to each other about the different deadlines. They just don't.

No.

Well, I think they try. Like one of our Physics teachers tried to get us to stay behind after class and he just didn't realise that we had got our drama presentations and technology and stuff. It is so difficult to fit everything in. Like I haven't had a lunch time for four weeks just because of having to practice and rehearse. It is too much.

LR: Looking back is there anything that you would have done differently if you were beginning your GCSEs again?

I think we should have done more work so that it was more spread out over the two years. It seems as if they were quite casual about it in Year 10, like they didn't really mind if we weren't doing very much work. Now, it is really pressured. I think they should have emphasised more in Year 10 like how much work there actually is. Like how much coursework there is.

I also think that some of the work we did in Year 10 was quite irrelevant. Because sometimes we spent hours doing something like a poster (*general yes from the others*) and projects which had nothing to do with our GCSEs. It just seems like such a waste. I would have much preferred to do all the things that I am doing now back then instead of the worthless things.

Because with some of the coursework options they gave it to us and said well the best thing would be to do it now, but no-one really pushed us. And so, suddenly they are in a panic and shouting for it now. They need to offer more support.

But I think they should communicate with other teachers about when the deadlines are. That is the thing because you can't do everything at once. Especially like with really different subjects. Like with drama it's really difficult to switch from doing that to technology because they are so different.

You feel as if you can't cope with switching between both and so you don't do your best. Like you just end up doing your half best.

LR: Does that feel quite disappointing?

Yes. I feel like I can do better but I just don't have time to do better.

LR: What about your thoughts about exams?

I haven't really thought about them very much because we've had so much coursework to do.

I really liked getting my timetable though, because I now know what is happening when, so it feels less stressful.

You can see how many exams you've got on certain days.

LR: Are they quite well spread out?

They are OK.

LR: So how do you think you are going to revise for them?

I don't know – *laughter from the rest of the group.*

Just go over the stuff that you've done before, use revision guides and just go over your work. Going over it loads of times and re-writing stuff to get it into your head.

I don't use my class book because quite a lot of the stuff it's like paragraphs of information which the revision book manages to shorten down into a sentence. It is so much easier to revise from a revision guide.

Yes, or your notes are rather vague about things but the revision guide is much clearer.

My notes tend to be muddled up.

I guess writing notes in class is helpful because it helps you learn things at the time but my notes are not helpful for revision.

LR: Do you think that most people don't use their notes for revision?

Yes, I don't think many of us would use our notes for revision.

Also, most people's notes are quite messy and so it is really hard to read them. It is also almost always in blue ink, like you don't make your notes to revise from.

LR: So you think your notes serve a purpose in helping you to understand something but they don't help with revision?

Yes. But then you use revision guides because they are more attractive and condensed into one book.

Especially if you have five class books over the course of two years – trying to find all the relevant points from those five books and the things you actually need just doesn't

work. But with the revision guides you have a clearer idea of what you need to revise. If you revise that book you will be ok in the exam.

LR: Do you know what you need to revise?

No. All the teachers say that they will give us a list of things to revise but they never do. It would be really useful to have, just a list of everything that you need to know.

Yes, you could reassure yourself that you were revising the right things.

LR: What about after your GCSEs?

Relax, party...

I'm going to college.

So am I.

LR: Does that help motivate you?

Yes, because you know what grades you need in certain subjects. But then it also demotivates you because if you're not doing so well in one subject, you think well I'm not taking it so I don't need to work as hard.

I think it will be better at college in some ways because although you will still have to put the same amount of time in you will have fewer subjects.

Yes and you have also chosen those subjects.

Yes, because some of the GCSEs you just really hate. It will be really nice next year to study something that you are passionate about and that you really like and find interesting.

Yes, because everyone does better in the subjects that they actually enjoy. Like at GCSE there are some subjects I really don't like.

Like in this school it is compulsory to take technology and I really don't like it.

I hate it.

We're the only school to do this – why? Not a lot of people like it. It is also so much work and takes up a lot of your time. Also you have to do it all at school – there is not enough time.

LR: Do you feel under pressure to achieve in your GCSEs?

Yes.

LR: Where does that come from?

You have kind of been building up to it for years. Also the teachers tell you that they have all this faith in you and you think what if I don't get it right.

I don't have any pressure from my parents.

But you know that if you came home with bad results they would be disappointed. It's also that I would be disappointed, because I want to do well for myself and prove that I can do them. I think it is more that you put pressure on yourself than any one else does.

LR: So do your GCSEs feel quite important?

Yes. Also it is pressure from you college. Like if you want to go to college you have to get certain marks. Like if you want to do certain subjects you have to get good grades for them so that adds to the pressure.

LR: So thinking about the GCSEs do you think there is a good balance between coursework and exams?

I think sometimes you put so much effort into your coursework and it is not actually worth very much.

Like you get really frustrated because it has been so stressful doing all the coursework and you do about ten pieces and only three get into it and it only counts 20%. You're like 'great'.
It does not seem as if it is worth all the effort you have put in.

LR: Do you feel you put too much effort into it?

Yes.

If the coursework was made to be more of the final grade then that would be fair.

LR: Do you feel anxious about the exams at all?

Not yet, but I will be.

I know that some of my friends have been really quite anxious and quite worried. I think part of it is with like sixth form and stuff you apply to the 6th form but if you don't get the grades then you don't get in. So although you have applied you don't know if you are going to get in and this is quite stressful.

Like, I've applied to a college and I have to get really quite good marks. I find this quite stressful because I can't be positive that I'm going to go there.

Yes, like when your future is unknown until August and then in September you have to go there. And it is just a few weeks before you start and there won't be time to think about things.

It would be good if you could choose which sixth form you were going to after your GCSEs because then you would just have your marks and then you could just think well I can go to that sixth form or that sixth form.

LR: So how confident are you feeling about your GCSEs?

Not at all – *response from three participants.*

No, I feel quite confident – *silence from the rest of the group.*

LR: So what would help with the confidence?

Knowing what in a straight forward way what we have to do.

Having a checklist.

Yes, a list from each subject teacher saying all the topics that we have done and what we need to revise.

Also, it would help if they re-organised the revision sessions because they're all on the same day.

No, like today is English and Friday is Science.

LR: What advice would you give to students who were just beginning their GCSE course in Year 10?

Get on with the coursework in Year 10 and don't think that you have ages to do it. *(General agreement from everyone.)*

Also, you have to know what your weaker subjects are so that you can spend more time on them. If you know that you are really good at something or something that involves a lot of coursework then you need to spend more time on the things that are difficult rather than doing the easy subjects.

LR: So if you summarised the critical things about GCSE what would you say?

Sometimes, it is just getting started. Particularly with revision, like you get up and you have planned to do revision but just don't want to start it. There are so many other distractions.

I think it is really important to know exactly what you have to study because the subjects are just so broad they seem to go on forever and you don't need all of it. A list would be really helpful because then that would help me structure what I have to do.

LR: Do you feel that you get enough support from the teachers?

No.

Some of them: it varies quite a lot. Our drama teacher is really good like she gives us so much support. You feel so much better when you have a good teacher.

But then technology, we have the worst technology teacher. We've had three teachers this year and it is so stressful because we haven't done anything.

Also, it's really difficult to know what to do when you have a bad teacher – the school just doesn't listen. Even if you go to the Head or your parents write in, you just don't get listened to.

It really drags you down having a bad teacher and I don't think the school places enough importance on the teachers. If you have a bad teacher then you get a bad mark and it isn't your fault.

LR: Are there any other issues about studying for GCSE that have not been included?

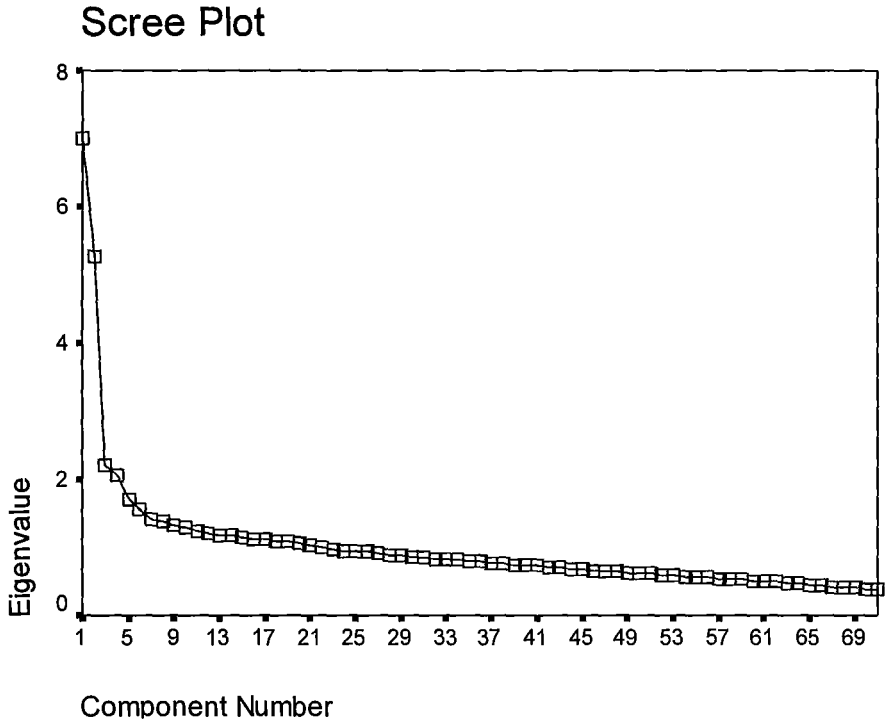
Pause

No, I don't think so. The main things are revision lists and coursework deadlines.

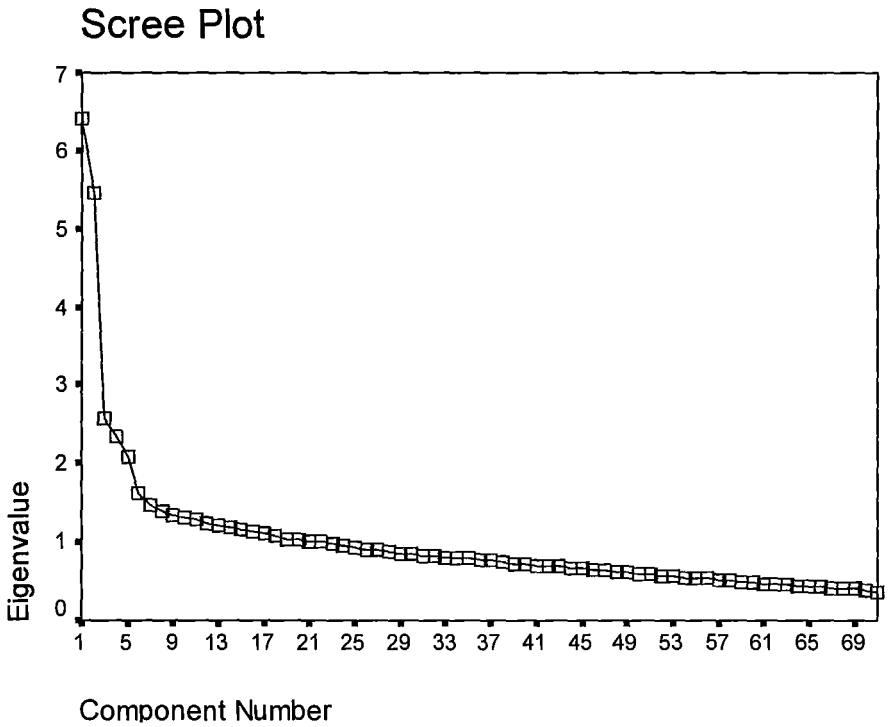
LR: Thank you very much.

Appendix 13: Scree plots for the Year 10 and Year 11 factor analysis

Year 10



Year 11



Appendix 14: Year 10 Analysis of variance F statistics

	F
It's really important to have use of a computer at home for coursework	14.049
I prefer exams because you know what you've got to learn	10.037
I find it helpful to work with music playing because it helps me to concentrate	7.072
I find it useful to have Internet access for research	8.013
I find coursework gives you the opportunity to explore your own ideas	17.386
I try to plan my homework so that it is manageable	66.011
I usually plan my revision weeks in advance	43.264
I often spend long hours doing coursework because I am anxious for it to be right	43.166
I usually do my homework at school	12.406
I'm unsure whether my work is any good or not	18.009
I find websites (e.g. BBC Bitesize) helpful when revising for exams	23.248
If I don't feel that the homework is important then I do it in the shortest time possible	17.827
I try to break my coursework down into small tasks rather than seeing it as a massive project	37.977
I go through lots of practice questions and past papers to help prepare for the exams	44.773
When given lesson time for coursework I prefer to chat with my friends and then work at home	17.966
I often work in front of the TV because it prevents me from getting bored	30.776
I find it helpful to revise with my friends	9.373
If I find my work difficult then I look things up in other books	31.635
Most of the exams are based on the work that I have done during the GCSE course so I don't feel that there is too much to revise	4.991
I like doing coursework because you can do it in your own time	11.767
When revising I test myself to check that I understand everything	59.381
I often go to the library for extra information	31.822
I usually take regular breaks when doing my homework	22.87
I find it hard to memorise things	36.026
I usually make sure that I have everything I need before starting work	29.872
I often re-read things if I don't understand the first time	19.41
I find that coursework tends to pile up	36.982
I spend time being critical of my own work since it helps me to produce better work	29.957
I find it difficult to concentrate when working at home	17.793
I tend to revise in short bursts because I concentrate better that way	18.783
Wherever I'm working I make sure that I feel comfortable so that I can focus on what I have to do	32.933
I put more effort into coursework than other work	17.286
I find it difficult to organise my work so that I have some time to relax each evening	40.696
I tend to revise more for subjects that I find difficult	21.003
I make sure that I check all my coursework drafts for any mistakes to see if I can improve	35.443
I get anxious about exams because I don't feel that I do my best	34.202
If my work isn't going well then I find it helpful to change to another task for a while and then go back	27.251
I usually have to work really hard at the end to complete coursework	40.525

I vary the amount of revision I do depending on whether I find the subject easy or difficult	19.07
When I need information about a topic I usually rely on the books I have at home	11.951
I find it helpful to discuss coursework with my friends	14.806
I feel that I have to spend hours rote-learning facts for a lot of the exams	27.361
I know what I need to do to get a good mark	15.69
I use different ways of revising	25.943
I usually leave my homework until it absolutely has to be done	54.365
I don't feel confident in assessing whether I know something or not	28.571
I often read more about areas that interest me	17.232
I get anxious about coursework	44.342
I find it hard to accept criticism of my work	20.861
When revising I usually test myself to see if I remember things	45.164
I make use of the feedback from teachers since it helps me to improve	31.732
I find it difficult to make notes for revision	25.988
I feel that you get less help from teachers for coursework	20.98
If I know that I don't understand something then I avoid those questions	35.572
It's difficult to manage the time required for coursework because there is no limit to what could be done	34.462
If I am unsure about something then I make an effort to improve my understanding	45.537
I usually try to remember lots of facts for exams rather than gaining an overview	14.167
I'm not always sure about what is required for coursework	32.836
Sometimes I have to work really long hours to finish my homework	32.846
Once the exam is over I find that I remember very little	25.985
Often I have to cancel seeing my friends or going out because I have too much work to do	31.588
I like gathering information from a range of sources and then forming my own opinion	28.289
The amount of homework varies so much that it is difficult to plan my work	46.949
I usually use revision guides to help me prepare for exams	29.736
I tend to make lots of notes about a topic before feeling confident enough to write an essay	28.377
I am aware when I don't understand things	17.448
I tend to do several drafts of coursework before submitting the final piece of work	22.693
If I feel unsure about something I ask for help from someone else	32.984
I feel that there is so much to learn that I find it difficult to know what to revise	39.314
I always plan what homework I have to complete by the next day	41.293
I find it difficult to summarise information	31.922

Appendix 15: Year 10 final cluster centres means for all questions

	Cluster					
	1	2	3	4	5	6
It's really important to have use of a computer at home for coursework	3.98	4.52	3.86	4.53	4.21	4.2
I prefer exams because you know what you've got to learn	3.08	2.62	2.53	3.31	2.92	3.17
I find it helpful to work with music playing because it helps me to concentrate	3.75	3.84	3.3	3.51	3.11	3.21
I find it useful to have Internet access for research	4.21	4.48	3.95	4.47	4.4	4.34
I find coursework gives you the opportunity to explore your own ideas	3.69	3.38	2.81	3.71	3.21	3.81
I try to plan my homework so that it is manageable	3.26	2.24	2.2	3.66	3.32	3.9
I usually plan my revision weeks in advance	2.74	1.98	1.83	3.24	2.57	3.23
I often spend long hours doing coursework because I am anxious for it to be right	2.68	2.88	3.56	1.96	2.21	2.29
I usually do my homework at school	2.80	2.53	2.34	2.38	1.84	2.17
I'm unsure whether my work is any good or not	2.46	2.86	3.01	2.47	3.06	3.52
I find websites (e.g. BBC Bitesize) helpful when revising for exams	2.92	3.08	2.45	3.64	2.73	3.51
If I don't feel that the homework is important then I do it in the shortest time possible	2.64	2.54	2.67	3.08	3.32	3.68
I try to break my coursework down into small tasks rather than seeing it as a massive project	3.77	2.48	2.73	3.87	2.94	3.71
I go through lots of practice questions and past papers to help prepare for the exams	3.34	2.52	2.27	3.64	3.27	3.84
When given lesson time for coursework I prefer to chat with my friends and then work at home	3.03	2.21	2.79	2.74	2.7	3.65
I often work in front of the TV because it prevents me from getting bored	2.63	3.47	3.22	3.54	4.19	4.1
I find it helpful to revise with my friends	3.53	2.98	2.7	3.35	2.72	3.03
If I find my work difficult then I look things up in other books	3.53	3.23	2.68	4.10	3.62	3.83
Most of the exams are based on the work that I have done during the GCSE course so I don't feel that there is too much to revise	2.92	2.37	2.57	2.67	2.35	2.39
I like doing coursework because you can do it in your own time	3.36	3.03	2.56	3.35	2.93	3.55
When revising I test myself to check that I understand everything	3.32	3.21	2.54	4.07	3.84	4.29
I often go to the library for extra information	2.37	1.71	1.80	2.82	2.01	2.92
I usually take regular breaks when doing my homework	3.86	3.88	3.09	3.80	2.81	3.59
I find it hard to memorise things	2.34	2.25	3.05	2.16	3.14	3.73
I usually make sure that I have everything I need before starting work	3.63	3.16	2.86	4.11	3.43	4.08
I often re-read things if I don't understand the first time	4.11	4.42	3.96	4.66	4.36	4.53
I find that coursework tends to pile up	2.22	1.85	2.47	1.83	2.71	3.38
I spend time being critical of my own work since it helps me to produce better work	3.33	2.82	2.63	3.95	3.23	3.52
I find it difficult to concentrate when working at home	2.93	3.24	3.53	3.07	3.92	4
I tend to revise in short bursts because I concentrate better that way	3.76	3.65	3.11	3.93	2.95	3.59
Wherever I'm working I make sure that I feel comfortable so that I can focus on what I have to do	3.83	4.1	3.28	4.4	4.09	4.38
I put more effort into coursework than other work	3.61	4.08	3.31	4.31	4.1	3.76
I find it difficult to organise my work so that I have some time to relax each evening	2.53	2.08	3.09	2.03	2.88	3.69
I tend to revise more for subjects that I find difficult	3.16	3.65	2.95	4.11	3.59	3.96
I make sure that I check all my coursework drafts for any mistakes to see if I can improve	3.48	3.53	3.1	4.31	3.95	4.3
I get anxious about exams because I don't feel that I do my best	2.29	1.70	2.91	1.62	2.47	2.86
If my work isn't going well then I find it helpful to change to another task for a while and then go back	3.63	3.96	3.05	4.35	3.48	3.33
I usually have to work really hard at the end to complete coursework	2.4	1.77	2.84	1.72	2.58	3.3

I vary the amount of revision I do depending on whether I find the subject easy or difficult	3.33	4.04	3.26	4.22	3.77	3.68
When I need information about a topic I usually rely on the books I have at home	2.77	2.63	3.31	2.3	2.81	2.87
I find it helpful to discuss coursework with my friends	3.55	4.05	3.16	4.09	3.59	3.78
I feel that I have to spend hours rote-learning facts for a lot of the exams	2.69	2.55	3.46	2.11	3.08	2.92
I know what I need to do to get a good mark	3.29	3.43	3.07	3.62	3.46	4.24
I use different ways of revising	3.31	2.84	2.55	3.66	2.91	3.74
I usually leave my homework until it absolutely has to be done	2.64	2.03	2.57	2.81	3.76	3.92
I don't feel confident in assessing whether I know something or not	2.73	2.35	3.06	2.3	3.21	3.47
I often read more about areas that interest me	3.82	4.32	3.45	4.28	4.04	3.56
I get anxious about coursework	2.71	2.33	3.3	1.73	2.49	3.37
I find it hard to accept criticism of my work	3.01	3.23	3.5	2.65	3.52	3.91
When revising I usually test myself to see if I remember things	3.38	3.33	2.73	4.19	3.78	4.19
I make use of the feedback from teachers since it helps me to improve	3.61	3.79	3.08	4.14	4.09	4.31
I find it difficult to make notes for revision	2.95	2.53	3.04	2.46	3.3	3.92
I feel that you get less help from teachers for coursework	2.8	2.53	2.81	2.31	3.31	3.6
If I know that I don't understand something then I avoid those questions	2.6	2.5	2.98	2.58	3.49	3.95
It's difficult to manage the time required for coursework because there is no limit to what could be done	2.29	2.17	3.14	1.92	2.61	3.24
If I am unsure about something then I make an effort to improve my understanding	3.74	3.47	2.85	4.13	3.8	4.22
I usually try to remember lots of facts for exams rather than gaining an overview	2.43	2.48	3.08	2.24	2.91	2.5
I'm not always sure about what is required for coursework	2.75	2.12	2.73	2.1	2.75	3.62
Sometimes I have to work really long hours to finish my homework	2.6	2.18	3.17	1.78	2.09	3.01
Once the exam is over I find that I remember very little	2.58	2.24	2.89	2.14	2.72	3.55
Often I have to cancel seeing my friends or going out because I have too much work to do	3.19	3.13	3.89	2.14	2.87	2.8
I like gathering information from a range of sources and then forming my own opinion	3.15	2.93	2.62	3.95	3.26	3.65
The amount of homework varies so much that it is difficult to plan my work	2.57	1.93	3.02	1.68	2.19	3.12
I usually use revision guides to help me prepare for exams	3.09	3.69	2.93	4.06	3.55	4.24
I tend to make lots of notes about a topic before feeling confident enough to write an essay	2.67	3.15	3.45	2.15	3.18	2.41
I am aware when I don't understand things	3.64	4.28	3.58	4.25	4.18	4.17
I tend to do several drafts of coursework before submitting the final piece of work	2.99	2.33	2.65	3.63	2.99	3.51
If I feel unsure about something I ask for help from someone else	3.58	3.99	3.07	4.25	3.99	4.14
I feel that there is so much to learn that I find it difficult to know what to revise	2.39	1.81	2.75	1.63	2.23	3.07
I always plan what homework I have to complete by the next day	3.21	2.52	2.66	4	3.55	3.87
I find it difficult to summarise information	2.57	2.54	3.12	2.28	3.03	3.91

Appendix 16: Year 10 Correlation coefficients for the discriminant functions

	Function				
	1	2	3	4	5
When revising I test myself to check that I understand everything	0.292	0.222	-0.084	0.048	-0.107
I try to plan my homework so that it is manageable	0.277	0.274	0.123	-0.147	-0.072
I often spend long hours doing coursework because I am anxious for it to be right (R)	-0.275	-0.108	0.084	0.128	0.123
When revising I usually test myself to see if I remember things	0.272	0.16	-0.057	0.055	0.009
If I am unsure about something then I make an effort to improve my understanding	0.272	0.155	0.026	0.059	-0.216
Often I have to cancel seeing my friends or going out because I have too much work to do (R)	-0.251	-0.029	0.048	0.021	-0.096
I usually plan my revision weeks in advance	0.249	0.171	0.15	-0.026	0.061
If I find my work difficult then I look things up in other books	0.244	0.085	0.019	-0.04	-0.066
I go through lots of practice questions and past papers to help prepare for the exams	0.242	0.204	0.112	-0.061	-0.135
Wherever I'm working I make sure that I feel comfortable so that I can focus on what I have to do	0.237	0.076	-0.093	0.172	-0.128
If I feel unsure about something I ask for help from someone else	0.234	0.058	-0.147	0.147	-0.128
I make sure that I check all my coursework drafts for any mistakes to see if I can improve	0.233	0.151	-0.076	0.048	0.119
I get anxious about coursework (R)	-0.231	0.207	0.109	0.186	-0.075
I spend time being critical of my own work since it helps me to produce better work	0.229	0.072	0.105	-0.080	0.141
I always plan what homework I have to complete by the next day	0.229	0.193	0.043	-0.174	0.218
I like gathering information from a range of sources and then forming my own opinion	0.224	0.09	0.036	0.004	0.184
I usually make sure that I have everything I need before starting work	0.216	0.12	0.12	0.059	0.046
I feel that I have to spend hours rote-learning facts for a lot of the exams (R)	-0.211	0.11	-0.067	-0.12	-0.005
I make use of the feedback from teachers since it helps me to improve	0.211	0.137	-0.131	0.085	-0.175
I tend to make lots of notes about a topic before feeling confident enough to write an essay (R)	-0.206	-0.056	-0.186	-0.108	-0.138
If my work isn't going well then I find it helpful to change to another task for a while and then go back	0.202	-0.146	-0.009	0.052	0.059
Sometimes I have to work really long hours to finish my homework (R)	-0.202	0.13	0.179	0.191	0.08
I use different ways of revising	0.187	0.107	0.161	0.133	0.034
I tend to revise more for subjects that I find difficult	0.182	0.055	-0.097	0.165	0.144
I often re-read things if I don't understand the first time	0.179	0.036	-0.099	0.153	0.114
I put more effort into coursework than other work	0.162	-0.038	-0.161	-0.023	-0.026
When I need information about a topic I usually rely on the books I have at home (R)	-0.149	0.056	0.013	-0.023	0.037
I prefer exams because you know what you've got to learn	0.125	0.06	0.087	-0.049	0.014
I usually leave my homework until it absolutely has to be done (R)	0.07	0.372	-0.144	-0.23	-0.086
I find that coursework tends to pile up (R)	-0.074	0.32	-0.039	0.051	-0.128

If I know that I don't understand something then I avoid those questions (R)	-0.035	0.313	-0.138	0.018	-0.042
I find it difficult to organise my work so that I have some time to relax each evening (R)	-0.137	0.309	0.018	0.068	0.021
I find it hard to memorise things (R)	-0.105	0.297	-0.102	0.052	0.044
I usually have to work really hard at the end to complete coursework (R)	-0.153	0.296	0.061	0.018	-0.037
I'm not always sure about what is required for coursework (R)	-0.074	0.29	0.085	0.094	-0.194
I find it difficult to summarise information (R)	-0.100	0.273	-0.043	0.189	-0.006
I find it difficult to make notes for revision (R)	-0.062	0.266	-0.012	0.04	-0.185
I don't feel confident in assessing whether I know something or not (R)	-0.108	0.258	-0.053	-0.074	-0.109
I feel that there is so much to learn that I find it difficult to know what to revise (R)	-0.174	0.253	0.135	0.114	-0.037
Once the exam is over I find that I remember very little (R)	-0.094	0.249	0.041	0.131	-0.036
The amount of homework varies so much that it is difficult to plan my work (R)	-0.216	0.227	0.198	0.146	0.008
It's difficult to manage the time required for coursework because there is no limit to what could be done (R)	-0.183	0.226	-0.006	0.105	0.157
I get anxious about exams because I don't feel that I do my best (R)	-0.188	0.222	0.05	-0.072	0.04
If I don't feel that the homework is important then I do it in the shortest time possible (R)	0.078	0.204	-0.086	-0.011	0.07
When given lesson time for coursework I prefer to chat with my friends and then work at home (R)	0.01	0.201	0.17	0.063	0.016
I find it hard to accept criticism of my work (R)	-0.114	0.183	-0.111	0.135	-0.134
I often work in front of the TV because it prevents me from getting bored (R)	0.064	0.183	-0.339	0.027	0.113
I try to break my coursework down into small tasks rather than seeing it as a massive project	0.188	0.112	0.325	-0.078	0.092
I usually do my homework at school	-0.002	-0.111	0.213	0.131	-0.106
I am aware when I don't understand things	0.137	0.019	-0.21	0.15	-0.026
I find it difficult to concentrate when working at home (R)	-0.050	0.184	-0.191	0.006	0.01
I find it helpful to revise with my friends	0.087	-0.041	0.177	0.026	-0.114
I vary the amount of revision I do depending on whether I find the subject easy or difficult	0.161	-0.056	-0.161	0.117	0.141
Most of the exams are based on the work that I have done during the GCSE course so I don't feel that there is too much to revise	0.012	-0.041	0.161	-0.081	-0.009
I often read more about areas that interest me	0.133	-0.128	-0.135	-0.01	-0.126
I usually take regular breaks when doing my homework	0.104	-0.098	0.209	0.335	-0.115
I usually use revision guides to help me prepare for exams	0.192	0.108	-0.106	0.292	0.146
I find websites (e.g. BBC Bitesize) helpful when revising for exams	0.189	0.037	0.065	0.253	0.145
I know what I need to do to get a good mark	0.1	0.148	-0.012	0.236	-0.021
I tend to revise in short bursts because I concentrate better that way	0.128	-0.071	0.193	0.230	0.021
I find it helpful to discuss coursework with my friends	0.151	-0.046	-0.057	0.195	-0.041
I'm unsure whether my work is any good or not (R)	-0.072	0.178	-0.136	0.187	0.007
I usually try to remember lots of facts for exams rather than gaining an overview (R)	-0.142	0.038	-0.113	-0.164	0.077
It's really important to have use of a computer at home for coursework	0.137	-0.058	-0.124	0.15	0.039

I tend to do several drafts of coursework before submitting the final piece of work	0.156	0.134	0.114	-0.078	0.298
I feel that you get less help from teachers for coursework (R)	-0.05	0.226	-0.076	-0.006	-0.281
I often go to the library for extra information	0.182	0.15	0.205	0.084	0.221
I find coursework gives you the opportunity to explore your own ideas	0.153	0.049	0.129	0.154	-0.204
I like doing coursework because you can do it in your own time	0.12	0.059	0.109	0.127	-0.169
I find it helpful to work with music playing because it helps me to concentrate	0.02	-0.112	0.084	0.123	-0.16
I find it useful to have Internet access for research	0.108	-0.011	-0.098	0.066	-0.136

Appendix 17: Year 11 Analysis of variance F statistics

	F
It's really important to have use of a computer at home for coursework	4.85
I prefer exams because you know what you've got to learn	3.1
I find it helpful to work with music playing because it helps me to concentrate	6.592
I find it useful to have Internet access for research	3.567
I find coursework gives you the opportunity to explore your own ideas	23.064
I try to plan my homework so that it is manageable	42.152
I usually plan my revision weeks in advance	39.474
I often spend long hours doing coursework because I am anxious for it to be right	30.046
I usually do my homework at school	24.493
I'm unsure whether my work is any good or not	18.993
I find websites (e.g. BBC Bitesize) helpful when revising for exams	14.766
If I don't feel that the homework is important then I do it in the shortest time possible	33.022
I try to break my coursework down into small tasks rather than seeing it as a massive project	26.764
I go through lots of practice questions and past papers to help prepare for the exams	25.887
When given lesson time for coursework I prefer to chat with my friends and then work at home	14.381
I often work in front of the TV because it prevents me from getting bored	33.403
I find it helpful to revise with my friends	7.203
If I find my work difficult then I look things up in other books	18.471
Most of the exams are based on the work that I have done during the GCSE course so I don't feel that there is too much to revise	8.761
I like doing coursework because you can do it in your own time	18.273
When revising I test myself to check that I understand everything	41.855
I often go to the library for extra information	28.126
I usually take regular breaks when doing my homework	12.21
I find it hard to memorise things	27.424
I usually make sure that I have everything I need before starting work	38.149
I often re-read things if I don't understand the first time	23.983
I find that coursework tends to pile up	46.204
I spend time being critical of my own work since it helps me to produce better work	15.679
I find it difficult to concentrate when working at home	22.31
I tend to revise in short bursts because I concentrate better that way	11.03
Wherever I'm working I make sure that I feel comfortable so that I can focus on what I have to do	21.179
I put more effort into coursework than other work	15.902
I find it difficult to organise my work so that I have some time to relax each evening	43.38
I tend to revise more for subjects that I find difficult	14.837
I make sure that I check all my coursework drafts for any mistakes to see if I can improve	38.228
I get anxious about exams because I don't feel that I do my best	27.873
If my work isn't going well then I find it helpful to change to another task for a while and then go back	13.343
I usually have to work really hard at the end to complete coursework	39.702
I vary the amount of revision I do depending on whether I find the subject easy or difficult	17.656
When I need information about a topic I usually rely on the books I have at home	9.939
I find it helpful to discuss coursework with my friends	14.792
I feel that I have to spend hours rote-learning facts for a lot of the exams	34.517
I know what I need to do to get a good mark	29.968
I use different ways of revising	22.823
I usually leave my homework until it absolutely has to be done	45.997
I don't feel confident in assessing whether I know something or not	36.516
I often read more about areas that interest me	15.138
I get anxious about coursework	41.8
I find it hard to accept criticism of my work	13.504
When revising I usually test myself to see if I remember things	34.4
I make use of the feedback from teachers since it helps me to improve	28.583

I find it difficult to make notes for revision	24.075
I feel that you get less help from teachers for coursework	15.828
If I know that I don't understand something then I avoid those questions	37.642
It's difficult to manage the time required for coursework because there is no limit to what could be done	45.424
If I am unsure about something then I make an effort to improve my understanding	34.65
I usually try to remember lots of facts for exams rather than gaining an overview	22.146
I'm not always sure about what is required for coursework	48.544
Sometimes I have to work really long hours to finish my homework	41.729
Once the exam is over I find that I remember very little	41.763
Often I have to cancel seeing my friends or going out because I have too much work to do	27.881
I like gathering information from a range of sources and then forming my own opinion	18.853
The amount of homework varies so much that it is difficult to plan my work	27.773
I usually use revision guides to help me prepare for exams	14.142
I tend to make lots of notes about a topic before feeling confident enough to write an essay	28.237
I am aware when I don't understand things	7.904
I tend to do several drafts of coursework before submitting the final piece of work	17.448
If I feel unsure about something I ask for help from someone else	31.654
I feel that there is so much to learn that I find it difficult to know what to revise	46.372
I always plan what homework I have to complete by the next day	25.978
I find it difficult to summarise information	28.067

Appendix 18: Year 11 final cluster centres mean values for all questions

	Cluster					
	1	2	3	4	5	6
It's really important to have use of a computer at home for coursework	4.49	4.64	4.36	4.45	4.3	4.22
I prefer exams because you know what you've got to learn	3.16	2.85	2.99	3.26	2.84	2.92
I find it helpful to work with music playing because it helps me to concentrate	3.61	3.59	3.84	3.11	3.17	3.53
I find it useful to have Internet access for research	4.47	4.48	4.38	4.32	4.27	4.12
I find coursework gives you the opportunity to explore your own ideas	3.97	3.35	3.26	3.01	3.78	2.78
I try to plan my homework so that it is manageable	3.63	3.09	2.58	3.06	3.8	2.19
I usually plan my revision weeks in advance	3.64	2.43	2.29	2.59	3.04	1.98
I often spend long hours doing coursework because I am anxious for it to be right	1.95	2.07	3.18	2.61	2.4	3.23
I usually do my homework at school	2.68	2.12	3.48	2.19	2.11	2.53
I'm unsure whether my work is any good or not	2.73	2.41	2.66	3.25	3.53	2.87
I find websites (e.g. BBC Bitesize) helpful when revising for exams	3.93	3.09	3.66	3.12	3.43	2.8
If I don't feel that the homework is important then I do it in the shortest time possible	3.19	2.66	2.25	2.93	3.79	2.29
I try to break my coursework down into small tasks rather than seeing it as a massive project	3.77	2.99	3.29	2.86	3.63	2.36
I go through lots of practice questions and past papers to help prepare for the exams	4.06	3.31	3.25	3.6	3.9	2.77
When given lesson time for coursework I prefer to chat with my friends and then work at home	2.94	2.45	2.58	2.8	3.52	2.47
I often work in front of the TV because it prevents me from getting bored	3.64	3.83	2.55	4.07	4.26	3.31
I find it helpful to revise with my friends	3.26	3.2	3.25	2.67	3.13	2.64
If I find my work difficult then I look things up in other books	3.92	3.87	3.07	3.46	3.74	2.98
Most of the exams are based on the work that I have done during the GCSE course so I don't feel that there is too much to revise	2.69	2.08	2.80	2.26	2.3	2.69
I like doing coursework because you can do it in your own time	3.7	2.93	3.21	2.53	3.45	2.69
When revising I test myself to check that I understand everything	4.03	3.72	3.30	3.81	4	2.56
I often go to the library for extra information	2.97	2.12	1.88	1.94	2.56	1.73
I usually take regular breaks when doing my homework	3.84	3.54	3.99	3.12	3.34	3.2
I find it hard to memorise things	2.68	1.93	2.55	3.43	3.3	2.97
I usually make sure that I have everything I need before starting work	4.09	3.72	3.4	3.3	4.07	2.57
I often re-read things if I don't understand the first time	4.53	4.48	4.25	4.29	4.44	3.64
I find that coursework tends to pile up	2.08	1.52	1.95	2.14	3.34	2.25
I spend time being critical of my own work since it helps me to produce better work	3.68	3.54	3.21	3.1	3.39	2.6
I find it difficult to concentrate when working at home	3.58	3.28	2.84	3.5	4.27	2.97
I tend to revise in short bursts because I concentrate better that way	3.76	3.49	3.86	3.12	3.36	3.03
Wherever I'm working I make sure that I feel comfortable so that I can focus on what I have to do	4.32	4.14	3.83	3.98	4.23	3.31
I put more effort into coursework than other work	4.1	4.3	4	3.94	3.81	3.18
I find it difficult to organise my work so that I have some time to relax each evening	2.41	1.88	2.38	2.95	3.61	3.24
I tend to revise more for subjects that I find difficult	3.9	3.83	3.54	3.56	3.71	2.81
I make sure that I check all my coursework drafts for any mistakes to see if I can improve	4.14	3.64	3.28	3.72	4.15	2.65
I get anxious about exams because I don't feel that I do my best	2.15	1.55	2.35	2.67	2.88	2.93
If my work isn't going well then I find it helpful to change to another task for a while and then go back	3.82	3.75	3.92	3.38	3.58	2.95
I usually have to work really hard at the end to complete coursework	1.96	1.69	2	2.08	3.28	2.57

I vary the amount of revision I do depending on whether I find the subject easy or difficult	4.16	3.99	3.95	3.69	3.42	3.12
When I need information about a topic I usually rely on the books I have at home	2.34	2.6	3.1	2.78	3.11	3.1
I find it helpful to discuss coursework with my friends	3.97	4	3.69	3.67	3.66	2.95
I feel that I have to spend hours rote-learning facts for a lot of the exams	2.12	2.12	2.98	2.88	3.26	3.31
I know what I need to do to get a good mark	4.1	2.76	3.75	3.60	3.87	3.03
I use different ways of revising	3.92	2.92	3.20	2.89	3.4	2.64
I usually leave my homework until it absolutely has to be done	3.12	2.71	1.96	2.84	4.07	2.6
I don't feel confident in assessing whether I know something or not	2.53	2.31	2.55	3.31	3.61	3.12
I often read more about areas that interest me	4.16	4.2	4.31	3.73	3.49	3.69
I get anxious about coursework	2.2	1.72	2.67	2.59	3.38	3.25
I find it hard to accept criticism of my work	2.81	3.08	3.48	3.52	3.82	3.3
When revising I usually test myself to see if I remember things	4.04	3.52	3.51	3.78	3.91	2.52
I make use of the feedback from teachers since it helps me to improve	4.18	3.97	3.85	4.04	4.18	3.04
I find it difficult to make notes for revision	3.01	2.35	2.58	3.49	3.68	2.98
I feel that you get less help from teachers for coursework	3.01	2.68	2.45	3.31	3.65	2.96
If I know that I don't understand something then I avoid those questions	3.05	2.64	2.36	3.44	4.02	2.86
It's difficult to manage the time required for coursework because there is no limit to what could be done	2.29	1.89	1.92	2.83	3.48	2.75
If I am unsure about something then I make an effort to improve my understanding	4.21	3.87	3.47	3.73	4.04	2.92
I usually try to remember lots of facts for exams rather than gaining an overview	2.18	2.27	2.41	2.78	2.96	3.32
I'm not always sure about what is required for coursework	2.44	1.85	2.23	2.78	3.7	2.92
Sometimes I have to work really long hours to finish my homework	2.02	1.57	3.05	2.36	3.03	3.06
Once the exam is over I find that I remember very little	2.47	1.72	2.02	3.07	3.25	2.7
Often I have to cancel seeing my friends or going out because I have too much work to do	2.1	2.3	3.26	2.96	3.05	3.6
I like gathering information from a range of sources and then forming my own opinion	3.82	3.13	3.04	3	3.55	2.68
The amount of homework varies so much that it is difficult to plan my work	2.19	1.86	2.39	2.2	2.97	3.08
I usually use revision guides to help me prepare for exams	4.19	4.11	3.87	3.88	4.09	3.19
I tend to make lots of notes about a topic before feeling confident enough to write an essay	1.93	2.84	3.05	2.86	2.68	3.53
I am aware when I don't understand things	4.18	4.11	4.06	4.08	4.09	3.58
I tend to do several drafts of coursework before submitting the final piece of work	3.73	3.25	2.85	3	3.33	2.45
If I feel unsure about something I ask for help from someone else	4.17	4.12	3.73	3.91	4.09	2.94
I feel that there is so much to learn that I find it difficult to know what to revise	2.11	1.49	1.94	2.76	3.08	2.82
I always plan what homework I have to complete by the next day	3.86	3.43	2.65	3.35	3.48	2.45
I find it difficult to summarise information	2.67	2.28	2.51	3.54	3.5	2.99

Appendix 19: Year 11 Correlation coefficients for the discriminant functions

	Function				
	1	2	3	4	5
I feel that I have to spend hours rote-learning facts for a lot of the exams (R)	-0.269	0.073	0.096	0.215	0.004
I get anxious about coursework (R)	-0.269	0.156	0.155	0.06	-0.127
I feel that there is so much to learn that I find it difficult to know what to revise (R)	-0.253	0.232	-0.037	-0.101	0.1
Often I have to cancel seeing my friends or going out because I have too much work to do (R)	-0.249	-0.027	0.092	0.179	0.03
I find it difficult to organise my work so that I have some time to relax each evening (R)	-0.248	0.226	0.009	-0.014	-0.051
I usually make sure that I have everything I need before starting work	0.236	0.195	0.072	0.121	-0.123
If I feel unsure about something I ask for help from someone else	0.234	0.139	-0.045	0.182	0.126
If I am unsure about something then I make an effort to improve my understanding	0.232	0.189	-0.022	0.021	0.044
I often spend long hours doing coursework because I am anxious for it to be right (R)	-0.227	-0.109	0.168	0.132	0.115
When revising I test myself to check that I understand everything	0.227	0.221	-0.074	0.111	0.216
I get anxious about exams because I don't feel that I do my best (R)	-0.225	0.129	0.075	-0.077	0.103
I usually try to remember lots of facts for exams rather than gaining an overview (R)	-0.224	0.047	-0.077	-0.006	-0.098
I often re-read things if I don't understand the first time	0.212	0.11	-0.003	0.16	0.089
I vary the amount of revision I do depending on whether I find the subject easy of difficult	0.194	-0.037	0.077	-0.023	0.166
I always plan what homework I have to complete by the next day	0.19	0.156	-0.114	-0.131	0.053
Wherever I'm working I make sure that I feel comfortable so that I can focus on what I have to do	0.186	0.137	-0.02	0.079	0.037
I spend time being critical of my own work since it helps me to produce better work	0.186	0.066	0.028	0.038	-0.049
I put more effort into coursework than other work	0.184	0	-0.027	0.163	0.134
I find it helpful to discuss coursework with my friends	0.184	0.032	-0.011	0.1	0.092
I tend to revise more for subjects that I find difficult	0.174	0.074	-0.001	0.104	0.062
I tend to do several drafts of coursework before submitting the final piece of work	0.174	0.115	0.012	-0.098	-0.04
If I find my work difficult then I look things up in other books	0.172	0.106	-0.125	-0.036	-0.115
I usually use revision guides to help me prepare for exams	0.163	0.086	0.009	0.119	0.049
I often read more about areas that interest me	0.134	-0.129	0.121	-0.012	0.037
It's really important to have use of a computer at home for coursework	0.094	-0.029	-0.082	0.028	0.046
I find it useful to have Internet access for research	0.093	-0.011	0.008	0.016	0.038
I usually leave my homework until it absolutely has to be done (R)	0.011	0.326	-0.139	-0.003	-0.317
I find that coursework tends to pile up (R)	-0.146	0.303	0.095	0.134	-0.215
If I know that I don't understand something then I avoid those questions (R)	-0.071	0.3	-0.151	0.034	0.037
I'm not always sure about what is required for coursework (R)	-0.205	0.292	0.018	0.031	-0.118
If I don't feel that the homework is important then I do it in the shortest time possible (R)	0.063	0.29	-0.065	0.025	-0.089
It's difficult to manage the time required for coursework because there is no limit to what could be done (R)	-0.189	0.285	-0.111	0.015	-0.039
I try to plan my homework so that it is manageable	0.185	0.278	-0.036	0.023	-0.063
Once the exam is over I find that I remember very little (R)	-0.178	0.263	-0.074	-0.127	0.219
I make sure that I check all my coursework drafts for any mistakes to see if I can improve	0.201	0.243	-0.024	0.05	0.1
I find it difficult to concentrate when working at home (R)	0.033	0.236	-0.089	0.067	-0.092

I find it difficult to make notes for revision (R)	-0.105	0.219	-0.051	-0.06	0.191
I don't feel confident in assessing whether I know something or not (R)	-0.207	0.217	-0.096	0.095	0.115
I go through lots of practice questions and past papers to help prepare for the exams	0.145	0.21	0.045	-0.088	0.132
When given lesson time for coursework I prefer to chat with my friends and then work at home (R)	0	0.195	0.045	0.062	-0.042
I feel that you get less help from teachers for coursework (R)	-0.058	0.188	-0.112	-0.03	0.028
I'm unsure whether my work is any good or not (R)	-0.110	0.188	-0.037	0.082	0.135
I like gathering information from a range of sources and then forming my own opinion	0.143	0.15	0.102	-0.122	-0.098
I usually do my homework at school	0.003	-0.11	0.397	-0.024	0.114
I often work in front of the TV because it prevents me from getting bored (R)	0.029	0.208	-0.375	0.004	-0.008
Sometimes I have to work really long hours to finish my homework (R)	-0.258	0.079	0.305	0.157	-0.047
I know what I need to do to get a good mark	0.044	0.194	0.293	-0.164	0.272
I find websites (e.g. BBC Bitesize) helpful when revising for exams	0.118	0.07	0.237	-0.08	0.06
I usually take regular breaks when doing my homework	0.108	-0.042	0.234	0.003	-0.059
Most of the exams are based on the work that I have done during the GCSE course so I don't feel that there is too much to revise	-0.032	-0.031	0.224	-0.187	-0.001
I try to break my coursework down into small tasks rather than seeing it as a massive project	0.161	0.169	0.217	0.027	-0.053
I use different ways of revising	0.146	0.132	0.217	-0.197	-0.044
I tend to revise in short bursts because I concentrate better that way	0.118	-0.015	0.206	0.043	-0.031
I find it helpful to work with music playing because it helps me to concentrate	0.042	-0.091	0.134	-0.031	-0.114
I find it hard to accept criticism of my work (R)	-0.11	0.084	0.004	0.332	0.079
I usually plan my revision weeks in advance	0.189	0.224	0.104	-0.329	0.009
I often go to the library for extra information	0.165	0.176	0.097	-0.256	-0.174
I tend to make lots of notes about a topic before feeling confident enough to write an essay (R)	-0.206	-0.139	-0.074	0.254	-0.065
When I need information about a topic I usually rely on the books I have at home (R)	-0.127	0.008	0.066	0.23	-0.063
If my work isn't going well then I find it helpful to change to another task for a while and then go back	0.154	0.01	0.142	0.161	0.031
I usually have to work really hard at the end to complete coursework (R)	-0.181	0.232	0.062	0.145	-0.334
I find it hard to memorise things (R)	-0.162	0.178	-0.014	-0.087	0.326
The amount of homework varies so much that it is difficult to plan my work (R)	-0.211	0.099	0.127	-0.036	-0.301
When revising I usually test myself to see if I remember things	0.199	0.194	0.043	0.096	0.291
I find it difficult to summarise information (R)	-0.152	0.194	-0.109	0.004	0.28
I like doing coursework because you can do it in your own time	0.111	0.102	0.228	-0.08	-0.242
I make use of the feedback from teachers since it helps me to improve	0.192	0.164	0.007	0.177	0.225
I prefer exams because you know what you've got to learn	0.009	0.007	-0.002	-0.12	0.219
I find coursework gives you the opportunity to explore your own ideas	0.161	0.151	0.14	-0.061	-0.195
I find it helpful to revise with my friends	0.102	0.013	0.116	0.087	-0.14
I am aware when I don't understand things	0.116	0.057	0.015	0.098	0.134